American Druggist

A JOURNAL OF PRACTICAL PHARMACY.

VOL. XXII. No. 4. NEW YORK, OCTOBER, 1892. WHOLE No. 237.

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TWENTY-SECOND YEAR.

AMERICAN DRUGGIST PUBLISHING COMPANY,

A. R. ELLIOTT, President and General Manager,

37 COLLEGE PLACE, NEW YORK, N. Y.

SUBSCRIPTION PRICE, per year,	$1.00
TO FOREIGN COUNTRIES, per year,	1.50
SINGLE COPIES,	.10

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Half "	225	125	70	25
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New advertisements can occasionally be inserted up to the 10th.

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IF you wish to know to what date your subscription is paid, examine the label which gives your name and that date, and which is pasted on the wrapper of every copy of your paper.

IN our correspondence column this month is a virile letter from the pen of W. H. Torbert, chairman of the Commercial Section of the A. P. A., on the tripartite plan and the Interstate League, which should be read by every thinking druggist.

QUERIES AND ANSWERS were for a long time an important and valued feature of NEW REMEDIES and its successor, the AMERICAN DRUGGIST. The publication of the answers to queries submitted was discontinued some time since by the former publishers. With this issue their publication is revived, and we would be pleased to have our friends aid in making this column interesting by submitting any observations which they may make in practice likely to prove of value to other pharmacists, and by sending in queries on any point, an answer to which might be of general interest.

PRIZE COMPETITION ON HOT SODA FLAVORS.

THE hot soda-water season is almost upon us, and the question presents itself: Shall I go into the hot soda-water business? The answer must be worked out for each specific situation on its own peculiar merits, but in a general way there can be no doubt that there is much room for expansion in this field.

The clientèle built up by a careful attendance on and good service at the soda fountain in the summer season may frequently, with a little education and coaxing, be turned into winter as well as summer customers. In a general way one may feel fairly safe in assuming that where a cold soda trade has been established a hot-soda trade may also be built up, provided the location be not one dependent for custom upon transient summer travel, say, as at the seashore, near a park entrance, etc.

Aside from the immediate returns, the secondary advantage, that of getting possible customers into the store, is of great weight and is in fact not infrequently esteemed the matter of first importance, taking precedence even of that of direct gain from the soda fountain sales. The fact that the public is comparatively less often on the street, with no specific purpose, during the winter than the summer, and that hot soda is served behind closed doors, puts hot soda at a marked disadvantage as a drawer of transient trade when compared to cold soda. There can be no doubt, however, that it may prove an attraction of no small moment if rightly served.

Just here is the point—how should it be served? what flavors used and how? Some practical suggestions are given on this point in another column in this issue, but the subject is by no means exhausted. We want the assistance of our readers on this point, and therefore herewith make an offer of a prize of fifteen dollars to the person sending in the three best formulas for hot soda-water flavors, with practical suggestions as to how to serve them.

We would be pleased to have all of our readers who have had practical experience in this line favor us with their views upon the subject.

All manuscripts intended to compete for this prize should be mailed so as to reach us not later than November 5th, so that the most promising formulas sent in may be published in the November issue of the DRUGGIST.

DOWN WITH GROCER-SELLING PROPRIETORS.

THE conduct of the sales agents of H. E. Bucklin & Co. in Utah, as outlined by a correspondent in another column, deserves the severest censure on the part of the drug trade. It is scarcely credible that this concern authorized their agents to deliberately antagonize the drug trade in the way they have done in that section.

Our correspondent, who is in a position to know whereof he speaks, says the manufacturers' agents are directly responsible for the sale of the preparation to the grocers. The more charitable supposition is that the grocers were rung in by the salesmen without authority. In any case the manufacturers have committed an error.

The spirit of fraternal protection is growing in the drug trade, and their transactions in proprietary medicines will be more and more based on the principles of reciprocity. Let the manufacturer protect the druggists and they will appreciate it in a substantial way; let him antagonize the druggists and they will prove dangerous foes.

Each proprietor of a medicine must choose for himself the medium through which his goods reach the public. The drug trade is the legitimate medium. If he prefers to ask the aid of grocers and dry goods dealers, he cannot expect to use the druggists as well. When he has made his choice he must abide by it. Pierce, Ayer, Hazeltine have come boldly out for the druggists. They have won success. Can you name a grocer-selling proprietor who has been successful? Not one. The record stands, grocers—failures; druggists—success. Let each proprietor choose and announce his choice.

CHOLERA AND THE DRUG TRADE.

THE inhabitants of the metropolis have just passed through a period of excitement and apprehension for personal safety, during which all other considerations were as unimportant events in comparison. Even the feverish pursuit of the almighty dollar was of secondary importance, so thoroughly had the people become imbued with the idea that danger in the shape of cholera germs was on board of every ship from Europe and lurked in every bale and package of the cargo. Indeed, many contended that the merchandise itself was probably infected. Nor were the inhabitants of this city alone in the absurd scare, for people remote from the seaboard showed equal alarm, and in some instances gave evidence that their judgment and good sense had become warped or perverted through unwarranted fear. To such an extreme was this fear of possible contagion carried that merchants in the extreme West refused to purchase goods in this city, and in justification stated that their customers would refuse to deal with them, knowing they had goods purchased in New York since the arrival of the first cholera-infected ship. Assurances of quarantine and the proper disinfection of the cargo had no effect—the people were afraid of the cholera. How or why they knew not.

This was the first direct effect on the commercial interests by the cholera scare, although there had been an advance in some of the disinfectants, and especially on chloride of lime. There was considerable apprehension in some quarters lest the length of the quarantine should cause a scarcity in some drugs, and speculative purchases were made in anticipation of this and of a possible injury to drugs by fumigation, steaming, or other means taken to disinfect the cargoes brought on plague-stricken ships. While popular apprehension was unreasoning, the more intelligent commercial community was not unaffected, which was shown in the belief that merchandise should be thoroughly steamed, fumigated, or disinfected in some way, even to the extent of ruining the drugs. That this belief was shared by many is evidenced by the discussion of the question who should suffer the loss entailed, the Government, the insurance companies, the steamship companies, or the importers. The scare was far more contagious than any disease, and soon pervaded the entire community. But it subsided almost as quickly. It may be needless to say that the fears of the importers of damage to drugs were as groundless as were those of the Western merchants of infection by means of supplies purchased here.

The detention of vessels at quarantine and the proper disinfection of merchandise have in no instance wrought serious hardship on the importer, nor has there been loss sustained by reason of damage to drugs through the process of disinfection employed. It is believed possible that the germs of cholera might be conveyed in the sacks or other coverings, but by no possibility in the merchandise itself. If the drugs were packed in a cholera-infected city there might be an extremely remote chance of carrying the same, but it would be so remote as not to be worth considering. The disinfection necessary, therefore, is only of the outer covering and need not injure or affect the contents in the least. And there are effective methods of disinfection which will not injure merchandise as steam will. The only influence on the drug market would be through the detention of the vessels at quarantine, and this has not been serious except, perhaps, in the case of some heavy chemicals in which the drug trade is but indirectly interested. So far as the detentions at quarantine are concerned, it may be said that the drug market has not been affected.

The cholera, however, has, both directly and indirectly, exerted an influence on a number of drugs. Among these the most important is opium, as its use in Russia and India has been enormous. Here the demand has shown only a light increase. One of the articles indirectly affected by the scourge is ergot. The prevalence of cholera in Russia has prevented the gathering of the spurred rye, and the restrictions to trade intercourse have prevented the forwarding of supplies, and prices have consequently enhanced. All the more important disinfectants have advanced in price as a direct result of the popular apprehension, and the activity of the manufacturers of these products exemplifies the old saying about the ill wind.

The experiences during the past six weeks have been entirely different from any previously gone through in this country. It is not that we have never before been threatened with an epidemic of Asiatic cholera, but we have never had such a "scare." In 1853, between September 9th and October 21st, there arrived at the port of New York twenty-two vessels, bringing seven thousand seven hundred and one passengers, and reporting three hundred and sixty-three deaths, yet there was no such widespread alarm and the vessels were detained in quarantine but from five to ten days. In 1875, 1884, and 1887, the last three "cholera years" when the disease was epidemic in European ports with which New York was in constant communication, practically no apprehension was felt in this city or anywhere else, yet the danger

was fully as imminent during each of those years as it was last month. In 1832 there was an epidemic of cholera in the city of Albany, this State, and sporadic cases in this city, Brooklyn, and elsewhere, yet nothing like the unreasoning apprehension of this year was witnessed. In none of the years cited was the drug market affected by reason of quarantine detentions, and no damage resulted to drugs by any process of disinfection; in fact, only in the last three periods was anything of the kind resorted to, and then only in a superficial manner. During the earlier period, that of 1832, the market for opium was affected to a far greater degree than it has been this year, as that drug was then regarded as a more important remedial agent in that disease; in fact, it was the main reliance. Disinfectants were at that time not so generally used nor were their value so generally understood.

All previous experience teaches that the following summer after the introduction of the disease is the real season of danger. This appears to favor the theory that the germs lie dormant through the winter, and therefore precautions should be taken to prevent an outbreak next year. This should be easily preventable, as Asiatic cholera is "a filth disease which is carried by dirty people to dirty places." Proper sanitary precautions, including good water and good food, are all that is required, and this being understood the measures necessary to prevent an outbreak next year can and should be applied.

THE PROPRIETORS AND THE TRIPARTITE PLAN.

EVERY druggist who has the commercial interest of his calling at large at heart should construct a "white" list of his own in connection with this tripartite plan for the prevention of the cutting of prices. Ever since the agitation first began some few of the proprietors have sincerely and earnestly sought to give practical aid to the movement, even in the face of active opposition on the part of the jobbing trade, and of distrust and in some cases secret opposition on the part of the retailers themselves, and to such men as Pierce full credit should be given.

That there are traitors in the camp of the retailers, it is useless to deny, and the experience of one proprietor will serve to illustrate how such traitors give aid and comfort to the common enemy, in order that they may gain some temporary advantage for themselves. In this instance the second order direct to the proprietor from a retailer for his largest quantity within a comparatively short space of time naturally aroused suspicion. The goods were shipped, however, and an agent sent along to watch them. This agent saw the truckman drive up to the retailer's, dismount, come out with a note, mount his truck and drive to a distributor, who was on the cut-off list, and there unload the entire lot.

The next morning the retailer received a letter stating that the proprietor's agent would call and would like the privilege of seeing the goods, to convince himself that the purchase was for legitimate purposes as he had been assured. Within a half-hour the agent presented himself, to be met with the most abusive tirade from the retailer, who, with righteous indignation, declined to show the agent anything except the front door. The agent did not press the point, but stated that he could be found at Blank's Hotel for a couple of days should the retailer reconsider his determination.

On the following morning he received an apologetic note requesting him to call and see the goods in question. On calling he found, by means of private marks, that the goods shown him were from three separate lots, incriminating two other retailers beside the one having them in stock, and showing that during the interim the retailer had restocked.

It is such treachery as this that shakes the confidence of the proprietor, and it should be the business of every self-respecting pharmacist to prevent and expose such treachery wherever it comes to their knowledge.

The honesty of purpose of proprietors who in the face of such discouraging experience still persist in their efforts to help maintain prices cannot be impugned.

In the discussion of this subject some of those interested have intimated—probably reasoning from isolated instances, such as that given above—that none of the individual plans so far tried had proven successful. It is with pleasure, therefore, that we quote Dr. R. V. Pierce's utterance on this head at the recent meeting in Montreal as follows:

I am very sorry to hear my friend Mr. Kline say that the plan as adopted and carried into effect by Ayer, by Hazeltine, and the World's Dispensary Association, has not been effective. I say it has, and that they have not only accomplished that, but have stopped hundreds of cases of cutting in individual instances scattered all over this country. (Loud cheers.) And I think the effect of this plan would be much more perfect and much more far-reaching if fifteen or twenty of the leading proprietors were to engage in carrying it out than if only two or three firms or corporations are struggling along, and the rest of the proprietors are paying no attention to restraining the sale of their goods. The fact is, we cannot expect any plan to be formulated by the American Pharmaceutical Association that will be a perfect panacea, especially when it is only attempted to be carried into effect by two or three of the manufacturers alone. I believe, if the majority of the proprietors will undertake this work as individuals—if it is decided that we cannot act in concert or combination—that, nevertheless, as individuals we can aid the retail trade and do them a lasting benefit by keeping up our efforts in this direction. I think Mr. Kline is entirely wrong when he said that there is no attention being paid to our plan. I am sure the gentleman did not wish to be understood in that light, that there was a plan carried out which had not been found adaptable to every particular locality in the Northwest, where there are in the whole region only three or four cutters.

With such hopeful words, based on actual experience under rather unfavorable conditions, before us, there can be no reasonable doubt that if other proprietors will exercise the caution, the energy, and the good will of those mentioned, and if the retail trade will organize as they should, the spread of cutting will be permanently stopped.

ADVERTISING the names of persons cured is by no means a recent idea, as witness the following advertisement, taken from a copy of the New York *Royal Gazette* for July 3d, 1782:

MOREDANT'S DROPS.

For curing all disorders. Mr. John Foster, of Welling in Kent, cured of leprosy attended with violent rheumatic pains.

Sold by James Rivington (the printer).

The papers were, however, happily free from the thrilling romances which wind up with advice to take Selery's Pain Compound, etc.

A TISSUE-PAPER TRUST is the latest thing in the centralization of industrial establishments. It is stated that, with one or two exceptions, the organization embraces all the large mills manufacturing tissue paper in the United States.

THE logic of events has proven the correctness of the position taken by the AMERICAN DRUGGIST on the "cholera scare." Our editorial under that title was reproduced in the dailies from Maine to California and from Canada to Florida, the Associated Press having wired it from one end of the country to the other. This occurrence is but one illustration of the high rank accorded the AMERICAN DRUGGIST as the leading exponent in America of scientific pharmacy. Just as was predicted in that article, cholera failed to effect a lodgment here, although a few sporadic cases did occur. The history of these cases well illustrates how little probability there is that the cholera will become epidemic in this city under the conditions existing since the attention of the sanitary authorities has been so vigorously turned toward the subject. When a case of cholera, or of suspected cholera, was reported—and there were altogether half a dozen such—two physicians of the sanitary corps were at once stationed in the house and instructed to closely supervise the personal hygiene of every member of the household, day and night. This prompt and energetic action proved effective in preventing any secondary case, save in one instance, where the second occurred before the first was suspected.

WE note with interest that the druggists of Rome, N. Y., have signed a paper by which they have agreed to close their respective places of business at 8 P.M., from October 1st to April 1st, excepting Saturday evenings and from December 18th to 26th. And also that each firm in turn shall keep open its store evenings, so that only one drug store will be open in the evening. There seem to be rather more announcements of this nature from various sections of the country than heretofore, and it is to be hoped that the agreements will be maintained. Druggists are a hard worked class, and need more of a chance to get away from business cares occasionally.

"WHERE cutting has not begun no interest is manifested in attempts to prevent it; where it has already begun it is too late," is about the way some of the jobbers and the proprietors express themselves on the cutting question. In delightful contrast with this is the manliness and directness of Pierce, Hazeltine, Ayer and a few others in lending substantial aid to the retailer in his fight against cutters and cutting. Hood, too, made a good, strong fight for awhile, but was handicapped from the start by unfair representations as to his former stand on the subject of substitution, and being at such a disadvantage abandoned the field after suffering considerable loss.

NOTE the prize offered for the best formulas for hot soda-water drinks on another editorial page. It may be that you have formulas you know to be good. If so, send them in; they may be the best submitted; if so, the fifteen dollars is yours.

THE Roumanian Government now requires a deposit with the customs officers of 100 francs for every proprietary article imported. If a proprietor controls half a dozen articles, he must make a deposit for each one.

READ THE LABEL on the wrapper of your paper. It shows you just how your subscription account stands.

Have you a friend who does not see the AMERICAN DRUGGIST? If so, send his name and we will forward a specimen copy. Our premium list is shown on page 41.

THE HOT SODA WATER SEASON.

CASWELL A. MAYO, PH.G.

HOT soda water "exists not," as the Germans say, save in name only, for your hot soda is merely hot water with suitable or, too often, unsuitable flavorings.

Probably the earliest reference to hot soda water on record occurs in the second act of "As You Like It," where old Adam speaks of "hot and rebellious liquors." It is true that some commentators are disinclined to believe that it was hot soda water that was thus referred to, but almost any young man who has wrestled with the problem of avoiding lukewarmness in the water on the one side and the prevention of an explosion on the other, cannot but feel convinced that Adam had served as second boy in a drug store, had shirked attendance on the hot soda fountain, and referred to the incident in the words indicated in a tone of exultation.

THE FOUNTAIN.

In its simplest form a hot soda fountain consists of a kettle with a lamp under it, and this fundamental outline is maintained throughout the various varieties of apparatus. The kettle may become a can lined with copper or porcelain inside and plated with nickel or surrounded with enamel, tiling, or marble on the outside; it may be prolonged into a tube connected at one end with the city waterworks and passing up in a silvered goose-neck draught arm at the other, but the result obtained and the principle involved are the same.

A planished tin can with a glass gauge showing the height of the water inside, and with a kerosene lamp below, can be had for $12 and presents a fairly neat appearance. For an apparatus to connect with the water pipe, with a gas stove below the counter as a source of heat, and with goose-neck draught arm the prices range from $25 to $225, while in the more complex forms of marble or tile apparatus almost any desired sum may be invested.

In the selection of an apparatus a regard must be had, of course, to the character and volume of trade and to the character of the store and its fittings. In so far as the product goes the simplest and cheapest form of apparatus yields as good results as the more complex, all that is wanted being hot water. It must be *hot*, however, not lukewarm. This point is of prime importance and once being secured, the balance depends upon the service and the flavors.

THE SERVICE.

Hot soda is best served in pretty China mugs, and here it undoubtedly pays to have something attractive. The flavor should be mixed with the water thoroughly by the attendant, with the aid of a silver plated "bar" spoon. If a goose-neck draught arm be used it is necessary, generally, to let the water run a little while before drawing a mug to dispense, to make sure of its being hot. The mugs should also be heated by first drawing them full of hot water, pouring this off and then putting in the flavoring and filling up.

THE FLAVORS.

There are four beverages especially appropriate for dispensing at the hot soda counter and these are chocolate, coffee, beef tea, and clam juice or bouillon. These are the staples and on them must depend the bulk of the sales. For all of these, save possibly the coffee, the dispenser must have recourse to the manufacturer, and for coffee itself some prefer to purchase the ready made extract.

Chocolate is probably the leader in popular favor and for its preparation each maker furnishes his own formula, which presumably gives the best results when using his make of chocolate. With both this and coffee much depends upon the use of a good cream. While milk alone is generally used, a mixture of cream and milk, while more expensive, gives an infinitely finer beverage. In the cities, however, the selected milk served by the milkmen in bottles is generally so rich as to answer very well without the addition of any extraneous cream. The following

gives a very satisfactory syrup where the trade is sufficiently brisk to enable one to dispense it before any chance is given it to spoil:

Confectioners' chocolate	½ pound.
Hot water	2 quarts.
Condensed milk	1 can.
Granulated sugar	5 pounds.
Whites of two eggs,	
Extract of vanilla	1 ounce.

Cut the chocolate finely into a porcelain lined evaporating dish and with the aid of heat and a pestle reduce it to a smooth paste. Add the water (boiling hot), stirring constantly, then stir in the condensed milk and sugar. Allow to cool, skim off the cacao butter, particles of chocolate, etc., add the white of egg, previously beaten to a froth, and the vanilla, and strain through muslin.

Coffee extracts can be purchased from the manufacturers of soda-water flavors, etc., but if the druggist prefer to do so he can himself prepare an excellent extract or rather syrup with comparatively little trouble. The ultimate result is primarily dependent upon the quality of the beans used. As it is the flavor that is wanted one of the best mixtures for this purpose consists of one part of Java to two of Mocha coffee.

Coffee, freshly ground and roasted	8 ounces.
Sugar	24 "
Best French brandy	1 "
Boiling water	16 "

Moisten the coffee with hot water and the brandy, pack firmly in a percolator, and pour on the boiling hot water, collect the first 16 ounces of the percolate and dissolve the sugar in the percolate.

Beef tea is made by simply dissolving the beef extract in hot water, and when served pepper, salt, and celery salt should be at hand, so that the customer may flavor to suit the taste. Some dispensers take the matter in their own hands and always add a dash of celery salt.

Beef tea may also be used as a basis for a large variety of beverages, while some pharmacists succeed in making a very good hot lemonade.

Clam juice may be served much the same as beef tea, the celery salt being even more valuable here than in the former case. Some, however, take equal quantities of clam juice and milk, to which the hot water is then added, while the addition of a soupçon of butter is a marked improvement. Clam juice should be served either ice cold or quite hot; when lukewarm it is not at all acceptable. Served cold it has been much recommended as a morning draught after wine suppers, as being at once tonic, laxative, and nutrient.

There is money in hot soda water, though here as elsewhere judgment and care should be exercised to obtain satisfactory returns. In Hartford, Conn., the sale of hot soda is general, the drinks served are excellent, and the pharmacists generally are satisfied with the returns. Some of the leading New York City stores do a good hot soda business, keeping both the hot and cold fountains going all winter, but there are many sections where hot soda might be introduced with profit.

Sterilization of Food.—Problems in connection with the sterilization of food for infants continue to exercise the minds of medical investigators. Dr. C. W. Earle accepts the views of Leeds as to the modifications produced in milk by sterilizing it at the boiling point of water, and shows how the nutritive value of food generally may be lessened by the employment of high temperature for the destruction of bacteria that may be present. He sums up by stating that both clinical and chemical evidence lead to the belief that milk is injured as a food for infants by being heated to any temperature above 80° C.; that pasteurization at a temperature of 70° to 80° destroys the bacilli of tubercle, typhoid, and cholera, the pneumococcus of Friedlander, and most of the ordinary germs in milk, whilst the milk itself is not injured; lastly, that milk may be pasteurized by simply immersing the vessel containing it in boiling water that has been removed from the source of heat, and leaving it so immersed for half an hour.—*Chicago Medical Recorder.*

Vindication of the English Method of Protection Against Cholera.*

THANKS to the energy and efficiency of Dr. Thorne Thorne and of the other officials of the Local Government Board, and of the medical officers of health of our seaport towns, we in this country are in a position to consider the cholera question more or less dispassionately. In consequence of the practical application of principles based on the outcome of scientific observation, we may in Great Britain and Ireland, if not in our Indian dependencies, consider it from the localized or isolated etiological rather than from the epidemiological point of view. Most European countries, indeed, are so far removed from those centres in which cholera is endemic, and the conditions during a great part of the year are so unfavorable to the development of cholera, that we should be able, by turning our attention at once to the etiological factor and by carefully studying the conditions of isolated infection, to stamp out the cholera before it has the opportunity of laying hold of a sufficiently large number of victims to entitle any outbreak to the serious title of "epidemic."

If the present outbreak on the Continent has afforded evidence of nothing else, it has proved that the ultimate causal agent of cholera is an organism which is capable of multiplying rapidly under certain definite conditions, but which under other conditions is very readily rendered impotent. Considering this etiological as distinct from the epidemiological factor, our sanitarians have succeeded in dealing with cholera just in proportion as they have, consciously or unconsciously, recognized its importance. Koch's cholera or "comma" bacillus is said to thrive almost exclusively in the intestine, into the walls of which it seldom passes deeply, and though present in the stools in enormous numbers, especially during the "rice-water" period, it does not make its way into other parts of the body, even when it is thriving most luxuriantly. Under normal conditions of the intestine this organism is so easily destroyed that it may be safely affirmed that unless enormous quantities are introduced by the mouth a perfectly healthy mucous membrane is quite able to deal with it. Where, however, as in the case of intestinal disturbances, or the result of indigestible food, fear, debauchery, or other depressing influences, or, it may be, as the result of the introduction of a quantity of the cholera toxines, along with the organism itself, the mucous membrane becomes injured and its functions impaired, the organism is enabled to multiply, to produce its toxines, to cause inflammation of the mucous membrane, through which it is enabled to obtain those products of inflammation on which it seems specially to thrive and from which it is able to produce its toxines in large quantities. It will be objected that it is a simple matter to make such sweeping assertions, but that it is not so easy to bring forward evidence of their accuracy.

Let us see what evidence there is in support of this contention. In the first place, Virchow, who has kept a most open mind on these questions, and who has recently been studying the question in Russia, maintains that cholera does not spread through the air, and that meteorological conditions have little to do directly with cases of individual infection. He holds that the disease spreads mainly, if not entirely, through the agency of the evacuations of patients already suffering from cholera. If this be so, we must be dealing with a substance that is capable of being reproduced at an enormous rate, and, so far as we know at present, there is nothing that can be so reproduced except the living ferment-producing organisms of which the "comma" bacillus is an example. But that these "comma" bacilli do multiply at an enormous rate has been demonstrated time after time by numerous observers, while it has also been proved that under certain conditions they are capable of producing symptoms in animals which are only comparable with those of cholera in man.

Hueppe, reporting on the Hamburg water supply, pointed out that the consumption of the water, which contained a considerable quantity of sewage matter,

* The London *Lancet.*

would, under ordinary circumstances, be accompanied by no untoward results, but that, should typhoid or cholera organisms find their way into this water, there would undoubtedly be a most serious outbreak. Typhoid fever in such places as Hamburg may be said to be almost endemic; but cholera only makes its appearance when the specific poison is imported. When it is imported, however, all the conditions necessary for the multiplication of the pathogenic agent are so favorable, and the means of conveying it to the inhabitants are so well adapted to the purpose, that the spread of the disease goes on with the utmost regularity and the most appalling fatality. As one of our special sanitary commissioners pointed out last week, the well water in Jumet is contaminated with drainage from the middens, and is thus rendered not only a most favorable nidus for the growth of the cholera organism, but, should any of the dejecta from the cholera patients remain unsterilized and be thrown on these middens, access to the wells, especially in rainy weather, is merely the matter of a few hours, and in this way there may occur a regular outbreak around a single case—perhaps imported from a distance. In Antwerp the first patients who were attacked in the present outbreak were those who were engaged in washing the clothes of cholera patients, or who helped to unload cholera-stricken vessels, and who had therefore ample opportunities of coming in contact with the cholera-producing poison. Many cholera outbreaks have thus been traced, just as we have been able to trace typhoid fever, from definite centres, and always with the result that the theory of a bacteriological causal agent has been further and further strengthened. Since such agency has been recognized the means of preventing the spread of cholera and similar diseases have been thoroughly systematized by our sanitary officials, and are now founded on a practical and satisfactory basis.

Dr. Cartwright Wood pointed out some time ago that there was much greater likelihood of successfully combating the cholera organism immediately after it was passed with the dejecta than when it had been allowed to multiply aërobically, seeing that after a time it becomes much more resistant to the action of chemical and other reagents, and consequently is in a better position to attack those brought in contact with it. It can under such conditions more readily withstand the acidity of the stomach, and thus has a greater chance of passing into the lower part of the intestinal canal. The excreta of cholera patients, if treated at once with even a weak solution of sulphate of iron, are rendered absolutely inert, the organisms are destroyed, and the toxines formed can do little harm; if, however, even small quantities of dejecta are allowed to remain on damp sheets or body linen, the organism can multiply with such extraordinary rapidity, and becomes so far adapted to its new surroundings, that it is enabled to flourish on the various foods used by man and thus be carried on the hands of those who have to wash the linen. Distributed by the water in which the linen has been washed or conveyed by articles of diet, it is widely disseminated.

If these facts are borne in mind, it is at once seen how utterly illogical and short-sighted are quarantine regulations of all kinds. People in quarantine are extremely liable to take the disease, and thus to form fresh centres; they are depressed and often badly lodged; they are deprived of sleep, and even of sufficient nutriment to keep up their health and strength; they are not allowed to exercise, and they are herded together in places not adapted for the reception of large numbers of people. In fact, all the conditions of a Mecca pilgrimage are reproduced on a small scale. The system is radically bad. All those actually attacked with cholera should be immediately isolated, carefully nursed in hospitals or apartments so arranged that thorough disinfection of everything coming in contact with the patient may be carried on; the body linen should be carefully boiled immediately it is removed, and the dejecta should be mixed with, or passed into, a solution of sulphate of iron, which is probably the very best disinfectant for the purpose. Of course, all those who have been or are near cholera patients should also have their physical welfare carefully attended to; they should be watched and compelled to have everything that should have come in contact with cholera patients carefully disinfected. If we could only look upon a cholera patient as covered with and evacuating a deadly green paint, we might have some chance of getting people to realize the importance of isolation and perfect cleanliness and disinfection. We need not fear any great outbreak of cholera in this country during the present year, or even next year, should the admirable precautions that have been taken be persevered with—as no doubt they will be, for no false security is likely to lay hold of our authorities, who now understand so well the idiosyncrasies of cholera. We ought to be, we venture to think, practically safe against any epidemic.

The difference between our system and the quarantine system used abroad has now experienced a severe test, and it is to be hoped that no such disgraceful panic will ever seize us as that which appears to have for a time obliterated all feelings of humanity in our American cousins. The lamentable state of matters that developed and remained in existence for a short time on the other side of the Atlantic indicates only too clearly that, with all our boasted advances in sanitary matters, some of those in authority have still utterly failed to grasp the very elements of sanitation and its relation to the etiology of cholera.

The Chemistry of the Elements Entering into Syrup of Phosphates of Iron, Quinine, and Strychnine of the Pharmacopœia.*

BY CHARLES T. P. FENNEL.

"Nature will not deliver her oracles to the crowd, nor by sound of trumpet. We must open our minds to her in solitude, with the simplicity of children, and look earnestly in her face for a reply."—WALTER SAVAGE LANDOR.

IT was profoundly observed by Bacon that "in all generation and transformation of bodies we should inquire, what is added, what remains, and what is lost; what is united and what is separated." This is the true character of inductive philosophy—careful observation and rigid analysis. These sentiments are applicable in this instance, and must ultimately lead to the solution of this and analogous queries which are annually presented before this body. The writer doubts whether any other subject has received more attention than the one under consideration, and yet the writer will reject all hypotheses and the authority of distinguished names connected with the subject, and present a rational solution to these tantalizing queries.

To arrive at definite conclusions it will be necessary to consider all factors that enter into the various processes and compounds which make up the final product. The pharmacopœial formulæ for the preparation of the solutions that virtually enter into the final product presuppose that the materials used are all of standard strength and purity, with the subsequent production of compounds of definite and uniform strength.

Practical experience has shown the fallacy of such an assumption, even under the most favorable conditions of care, judgment, and skill. It naturally follows that the strict adherence to pharmacopœial processes will produce variable results and necessitate assays for strength to obtain positive and harmonious results. According to this method of reasoning, the first factor for consideration will be the solution of tersulphate of iron.

SOLUTION OF TERSULPHATE OF IRON.

There is no difficulty in preparing this solution to meet the requirements of the Pharmacopœia so far as its identity and purity are concerned, but as to its strength this preparation will show considerable variance. The percentage of ferric oxide must be ascertained, and according to this percentage a corresponding equivalent used. There can be no question of doubt as to its composition—viz., an aqueous solution of normal ferric sulphate, $Fe_2 3SO_4$, the officinal strength being 28.7 per cent.

The second factor to be considered:

* Presented at the Profile House meeting of the American Pharmaceutical Association.

SOLUTION OF FERRIC CITRATE.

According to the Pharmacopœia, this solution contains *about* 35.5 per cent of the anhydrous salt, symbolized $Fe_2 2C_6H_5O_7$, molecular weight 489.8.

The process consists in the production of a fresh and well-washed ferric hydrate ($Fe_2 6OH$) and its subsequent solution in crystallized citric acid ($H_3C_6H_5O_7 - \overset{H_2O}{)}$. Strict adherence to the pharmacopœial formula will produce reliable and fairly concordant results, but skill and judgment are essential. The allowance for loss for the want of this skill and judgment is very fair, and yet frequently, with the exercise of the greatest care, factors enter during the process of preparation that produce results far below the pharmacopœial strength. It is well established that the ferric trihydrate ($Fe_2 6OH$), brown in color, is completely soluble in citric and tartaric acids. It is further well known that a dehydration takes place in the process of washing, the *dehydration* being proportionate to the *time* of *contact* and *temperature*. The produced *basic* hydrates are virtually insoluble in citric and tartaric acids. The exact manner of dehydration is unknown, but from analogy we may symbolize the process as follows:

$Fe_2 6OH = F_2^{III}O_3^{II}3H_2O$ = Trihydrate Iron—(Ferric Trihydrate).

$Fe_2O_3 3H_2O - H_2O = Fe_2^{III}(O^{II}4(OH)^{I})^{VI}$ = Binhydrate Iron — (Ferric Binhydrate).

$Fe_2O_3 3H_2O - 2H_2O = Fe_2^{III}(O_2^{II}2(OH)^{I})^{VI}$ = Monohydrate Iron — (Ferric Monohydrate).

$2Fe_2O_3 3H_2O - 3H_2O = Fe_4^{III}(O_3^{II}6(OH)_1)^{XII}$ = Sesquihydrate Iron — (Ferric Sesquihydrate).

This process of dehydration is perceptible to the eye by change of colors from brown to brownish-red, to reddish-brown, and finally to brick-red. Chemically this process of change can likewise be shown and most beautifully illustrated in the preparation of the saccharated carbonate of iron by the reagents ferro- and ferricyanide of potassium. In this latter compound the process is one of oxidation and hydration and virtually the reverse process. The proneness of ferric trihydrate to form lower hydrates or basic hydrates induced the writer to suggest the modifications offered in the AMERICAN DRUGGIST, January, 1890, and supplemented in the "Digest of Criticisms on the Pharmacopœia." It is, therefore, apparent that the proper precipitation of ferric trihydrate is of the utmost importance, and must be accomplished in dilute solutions to insure rapid washing; the alkali must always be in excess to prevent the formation of basic salt at the very beginning; the solutions must be cold to prevent the formation of basic hydrates; in fact, all factors producing heat, especially strong sunlight, must be considered.

Some years ago the writer was much surprised at the effect produced by sunlight on a solution of ferrous citrate and subsequently on the scaled salt of both citrate of iron and the ammoniated citrate of iron. Solution of ferrous citrate kept in bottles partially filled, excluded from sunlight, suffered no decomposition, yet the same solution exposed to sunlight soon showed evidence of ferric condition, no matter whether the vials were completely or partially filled. Sunlight was the factor producing the change. Accidentally the scale salt of ferric citrate produced by drying with strong sunlight was tested with ferricyanide of potassium and found to indicate a ferrous condition. The original solution from which the scale salt was produced failing to give this reaction, it was but natural to conclude that a reduction had taken place induced by sunlight or citric acid, either combined or singly. Experiments since then have convinced the writer that sunlight is a factor to be considered at all times; further, that sunlight tends to produce a reduction rather than oxidation, that the latter effect is produced most rapidly under the influence of a good current of air; further, that citric acid, in the presence of ammonia, produces a similar reduction in the dark, especially when exposed to atmospheric influences.

Another factor, not strictly entering into the question, is deserving of consideration at this point, viz., the peculiarity exhibited by organic acids, such as citric and tartaric acids, in presence of ammonia.

I. Water of ammonia added to salts of iron in combination with inorganic acids decomposes them with the formation of ferric trihydrate ($Fe_2 6OH$) and salts of ammonia of the respective inorganic acids liberated, and in which the produced ferric trihydrate is virtually insoluble.

II. Salts of iron combined with organic acids, such as citric and tartaric acids, suffer the same decomposition, but the produced ferric trihydrate is soluble in the accompanying ammonium salt. Such a condition may exist in the process of the above preparation, and form more than a probable possibility for the production of the ammonio-citrate of iron, even when skill and judgment are at the command of the operator, the chemical process being symbolized as follows:

$$I.\ 3Fe_2 3SO_4 + 18NH_4OH = 3Fe_2 6OH + 9(NH_4)_2SO_4.$$
$$3Fe_2Cl_6 + 18NH_4OH = 3Fe_2 6OH + 18NH_4Cl.$$

In both instances the ferric trihydrate produced is insoluble in the ammonium salt accompanied with it, and the latter may be obtained virtually pure in quantities proportionate to their molecular weight.

II. The chemical process under the above Article II. is symbolized $3Fe_2 2C_6H_5O_7 + 18NH_4OH = 3Fe_2 6OH + 6(NH_4)_3C_6H_5O_7$, and as quickly as the ferric trihydrate is formed solution takes place in the accompanying ammonium salt, proportionate to the quantity set free or produced; but since the quantity of citrate of ammonium formed is insufficient to form the normal double salt [citrate of iron and ammonium—$3(Fe_2(NH_4)_3C_6H_5O_7)$], it is but rational to suppose the formation of the next lower or basic salt, in which the ferric trihydrate suffers dehydration and conversion into the ferric binhydrate, $3Fe_2(O_4^{II}(OH)^{I})^{VI}$ (as previously shown), this latter salt combining with $6(NH_4)_3C_6H_5O_7$) citrate of ammonium to form $[Fe_6^{III}(O_3^{II}4(C_6H_5O_7)^{III})^{XVIII}, 2(NH_4)_3C_6H_5O_7]$ mono-ammonio-binhydrate ferric citrate and $(12NH_4OH)$ ammonia free, in quantities proportionate to $(\frac{2}{3})$ two-thirds of the original quantity. Practical test demonstrates that the reduction is not partial but complete; that is, that the ferric trihydrate suffers dehydration to the formation of the ferric monohydrate $(3Fe_2^{III}(O_2^{II}2(OH)^{I})^{VI}$, and this combining with $(6(NH_4)_3C_6H_5O_7)$ citrate of ammonium to form $[Fe_6^{III}(O_6^{II}2(C_6H_5O_7)^{III})^{XVIII}, 4(NH_4)_3C_6H_5O_7]$ di-ammonio-monohydrate ferric citrate; and setting $(6NH_4OH)$, ammonia free, proportionate to $(\frac{1}{3})$ one-third of the original quantity—the chemical résumé being symbolized as follows:

$$3Fe_2O_4(OH) + 6(NH_4)_3C_6H_5O_7 = Fe_6O_8 4C_6H_5O_7 2(NH_4)_3C_6H_5O_7 + 12NH_4OH.$$

$$3Fe_2O_2 2(OH) + 6(NH_4)_3C_6H_5O_7 = Fe_6O_6 2C_6H_5O_7 4(NH_4)_3C_6H_5O_7 + 6NH_4OH.$$

$$Fe_6O_8 4C_6H_5O_7 2(NH_4)_3C_6H_5O_7 = 3[Fe_2^{III}(NH_4)_2^{I}(O^{II}2(C_6H_5O_7)^{III})^{VIII}].$$

$$Fe_6O_6 2C_6H_5O_7 4(NH_4)_3C_6H_5O_7 = 3[Fe_2^{III}(NH_4)_4^{I}(O_3^{III}2(C_6H_5O_7)^{III})^{X}]4$$

The chemical reaction between ferric citrate and water of ammonia is symbolized as follows:

$$3Fe_2 2C_6H_5O_7 + 12NH_4OH = 3[Fe_2(NH_4)_4(O_2 2C_6H_5O_7)] + 6H_2O.$$

That this compound $(Fe_2(NH_4)_4O_2 2C_6H_5O_7)$ di-ammonio-monohydrate ferric citrate is formed can readily be demonstrated.

Neutralizing 42 gr. of crystallized citric acid with ammonia water of known strength, and noting the quantity, these 42 gr. of crystallized citric acid should produce 54.38 gr. of ferric citrate ($Fe_2 2C_6H_5O_7 3H_2O$); therefore this quantity was taken and gradually dissolved in the cold by ammonia water of the same strength, the quantity necessary for solution being 24.3 gr.; the water of ammonia assaying 27.89 per cent ammonia gas by weight. The experiment was repeated in every conceivable manner, and the result invariably the same. The facts established may be summarized as follows: That the quantity of ammonia water necessary to produce transparent garnet-red scales, known as ammonio-ferric citrate, is $(\frac{2}{3})$ two-thirds as much as is necessary to neutralize an equivalent quantity of crystallized citric acid. Practical tests further show that a quantity of ammonia water in excess will indicate free ammonia, and a quantity less will produce opaque, brownish, red scales.

The molecular weight ascertained at the temperature 100° C., until constant weight was obtained, would indicate the absorption of 2 molecules of water, its composition being $Fe_2(NH_4)_4O_2C_6H_5O_7 2H_2O$; molecular weight 629.8, containing 25.3 per cent. ferric oxide.

The next factor for consideration:

CITRATE OF IRON.

Referring to the Pharmacopœia, we obtain the following information: A scale salt, $Fe_2C_6H_5O_7 6H_2O$, molecular weight 597.8; obtained by evaporation of any convenient quantity of an aqueous solution containing about 35.5 per cent of the anhydrous salt to a syrupy condition at a temperature not exceeding 60° C., and spreading on plates of glass.

Admitting that all the necessary precautions had been taken in the preparation of the solution of citrate of iron, the query will nevertheless arise as to the constitution of the scale salt so far as water of crystallization, if such it may be called, is concerned.

To avoid all objectionable features of a possible contamination with ammonia or ammonia salts and basic salts of iron, the writer adopted the following method for the preparation of ferric citrate: Freshly precipitated barium carbonate was dissolved in citric acid, the resultant barium citrate thoroughly washed and dried at water bath heat. A known quantity (7.89 gr.) was dissolved in 100 Cc. of water, and to this solution were added 13.9 gr. solution of tersulphate iron, assaying 28.7 per cent. The precipitate of barium sulphate was collected, thoroughly washed, the washings and filtrate collected and evaporated on a water bath in the dark. Gradually minute scales were found floating on the surface of the liquid; these were collected and dried until the weight remained constant, which was found to be 5.5 gr. Much more difficulty was experienced in the process than was anticipated, for the barium citrate is virtually insoluble in water; the produced ferric citrate adhered with wonderful tenacity to the precipitated barium sulphate, and, lastly, in the process of concentration a reduction to the ferrous condition took place. The reduction was avoided by evaporating in the dark. The process was much simplified in future experiments by adding to a solution of tersulphate of iron dissolved citric acid, and adding to this mixture freshly precipitated barium carbonate in molecular weight proportions. The produced barium sulphate removed by filtration is subsequently washed, the filtrate and washings concentrated at water bath heat in shallow dishes excluded from light.

The product consisted of small, flat, shining tablets, brown in color, with golden-yellow hue, containing three molecules of water of crystallization or absorption, according to the following composition: $Fe_2C_6H_5O_7 3H_2O$.

The next factor requiring consideration would be the preparation of phosphate iron, emphasized

FERRIC PHOSPHATE.

The precipitates formed by treating soluble ferric salts with alkaline phosphates vary greatly in composition, according to the nature of the solution used and the proportions in which they are mixed.

The normal ferric orthophosphate, Fe_2PO_4, is white in color, insoluble in water, nearly insoluble in acetic acid, slightly soluble in water containing carbonic acid gas, soluble in dilute mineral acids. It is precipitated from these by alkali, alkaline carbonates, acetates. These physical properties being well established, it follows that, to insure complete precipitation by alkaline phosphate, the solution of iron must be as neutral as possible.

The point of exact neutrality is not so readily ascertained, and, therefore, it has been found to be advantageous to add a considerable quantity of an alkaline acetate, owing to the insolubility of the normal ferric orthophosphate in solutions of alkaline acetates. Aside from these properties the orthophosphate of iron thus prepared is soluble in citric and tartaric acids and their salts of the alkali, the resultant compound forming scale salts soluble in water. Solubility being wanting in the normal salt and yet the desideratum, the peculiar property of solubility in alkaline citrates was utilized, and gave rise to the officinal salt known as ferric phosphate, the officinal process being embodied in the following formula:

Citrate of Iron	5 parts.
Phosphate of Sodium	6 "
Distilled Water	10 "

Dissolving the citrate of iron in the distilled water by water-bath heat, and adding the phosphate of sodium under constant stirring until dissolved, evaporating the solution at 60° C. to a syrupy consistence and spreading on plates of glass. The bright-green, transparent scale salt thus obtained is to be kept in well-stoppered bottles and protected from light.

The chemical process is symbolized by the following equation:

$$3Fe_2C_6H_5O_7 3H_2O + 6Na_2HPO_4 12H_2O = 3Fe_2PO_4 + 4Na_3C_6H_5O_7 + 2H_3C_6H_5O_7 + 81H_2O$$

$$3Fe_2PO_4 + 4Na_3C_6H_5O_7 + 2H_3C_6H_5O_7 = 3Fe_2PO_4, 6Na_2HC_6H_5O_7.$$

Adhering strictly to the pharmacopœial formula, a scale salt was always produced which differed in the color designated by the officinal process; the color of the resultant salt being on the order of red, deficient in brilliancy and transparency. The error in results was ascertained and found to be due to the lack of sodium phosphate.

Calculating the theoretical quantity, it was found that 6.58 parts of sodium phosphate ($Na_2HPO_4 12H_2O$) were necessary for 5 parts of ferric citrate ($Fe_2C_6H_5O_7, 3H_2O$). Practical experience required 6.6 parts instead of 6.58 parts, this difference in proportions being in all probability due to the loss of water in the ferric citrate.

Adopting the following proportions and adhering to the pharmacopœial directions—

Ferric Citrate ($Fe_2C_6H_5O_7 3H_2O$)	5 parts.
Sodium Phosphate ($Na_2HPO_4 12H_2O$)	6.6 "
Distilled Water (H_2O)	10 "

the desired bright-green, transparent scale salt was obtained. Operating with 543.8 gr. ferric citrate the resultant product under constant weight was 828.2 gr.

The composition, therefore, would be $3Fe_2PO_4 6Na_2HC_6H_5O_7 9H_2O$, or its equivalent $Fe_2PO_4, 2Na_2HC_6H_5O_7 3H_2O$.

The salt containing (3) three molecules of water of crystallization or combination, the assay for metallic iron indicates 13.5 per cent.

A solution of this salt in water was subjected to the following conditions:

Sample No. I. Solution (1–8) completely filling 4-ounce bottle.

Sample No. II. Solution (1–8) partially filling 4-ounce bottle.

Both were set aside in the laboratory subject equally to the influence of light and temperature and examined for free phosphoric acid after two, four, and six months.

In every instance the quantity found represented ($\frac{1}{3}$) one-third the original quantity of acid present, with but very slight variation.

The same experiment repeated by exclusion of light showed the presence of free phosphoric acid, but in variable quantities, so that no definite conclusions have as yet been arrived at, but inference is at hand that the result will be identical, only requiring a longer period of time.

We may therefore reach the natural conclusion that a reduction takes place with the formation of basic salt, this reduction being analogous to the dehydration of ferric trihydrate and symbolized as follows:

$$3Fe_2PO_4 + 3H_2O = Fe_6O_4PO_4 + 2H_3PO_4.$$

The addition of ammonium hydrate or sodium carbonate facilitated the precipitation, a condition frequently occurring in the preparation of the ingredients entering into the officinal syrup of phosphates of iron, quinine, and strychnine, as set forth by the preceding data. We may therefore positively state that ferric phosphate, U. S. P., slowly gives up part of its acid in aqueous solution, more especially if the aqueous solution be alkaline, and that consequently precipitation will take place at all events.

Lastly, the syrup into which the preceding prepara-

tions enter, and which bring with them the factors that apparently produce defects:

SYRUPUS FERRI, QUININÆ ET STRYCHNINÆ PHOSPHATUM.

According to the Pharmacopœia, we obtain the following information:

Phosphate of iron ($Fe_2 2PO_4 2Na_2 HC_6H_5O_7$, $3H_2O$) 827.8	133 parts.
Quinine ($C_{20}H_{24}N_2O_2 3H_2O$) crystallized, 378.0	133 "
Strychnine ($C_{21}H_{22}N_2O_2$), 334	4 "
Phosphoric acid (H_3PO_4) (containing 50 per cent), 98	800 "
Sugar	6,000 "
Distilled water, sufficient quantity to make	10,000 "

The ferric phosphate is dissolved in water, to the solution of which is added the phosphoric acid, this mixture being used as a solvent for the alkaloids, and lastly adding more water and sugar to make the required quantity.

Experience has shown that the syrup gradually darkens, and that precipitation takes place in the course of time. No preparation has given so much annoyance, for the reason that the results do not appear to be uniform in the hands of different operators, at one time satisfactory and at other times the very opposite.

The writer feels confident of having clearly demonstrated, by the preceding data, that with the exercise of the greatest skill and judgment, the precipitation of the officinal ferric phosphate in a basic condition cannot be avoided; and further, that the formation of this basic salt is the result of natural influences. The observation and results obtained further show that the precipitation may be accelerated by the careless preparation of any one of the compounds which enter into the final product, and that a lack of skill and judgment, and the necessary precautions essential to the production of trustworthy compounds, apparently indicate a defective formula; yet such is not the case, for the formula is as perfect as man can make it.

Senecic Acid.—Shimoyamo has obtained from the leaves of *Senecio Kæmpferi*, a Japanese evergreen which has the property of coloring the skin red, an acid to which this property is due. It is described as forming colorless, acicular crystals, sparingly soluble in cold water, but readily soluble in hot water, alcohol, ether, or chloroform. The acid melts at 65° C. It may be distilled without alteration, and is slightly volatile, even at the ordinary temperature. Its composition is represented by the formula $C_5H_8O_2$, and has in other respects some resemblance to tiglic and angelic acids. The silver salt $C_5H_7AgO_2$ may be crystallized from a solution in boiling water. The calcium salt $(C_5H_7O_2)_2Ca+3H_2O$ is readily soluble in water, and forms colorless needles.—*Apotheker Zeitung.*

Iodine Trichloride.—On account of the introduction of this substance into surgical and ophthalmic practice, A. Tschirch has studied its behavior with water and its antiseptic action. In contact with water it immediately undergoes decomposition, yielding monochloride, hydriodic and iodic acids. Both the latter have but a very slight antiseptic action, consequently the effect of a solution of the trichloride can only be due to the monochloride produced. The idea that the antiseptic action is due to nascent chlorine is incorrect, since no chlorine is eliminated. Comparative trials with pure trichloride, monochloride, and the brown commercial article have given identical results, and they show that the monochloride is a very powerful antiseptic even when diluted to the extent of 1 in 2,000.—*Schweiz. Wochenschr. für Chem. und Pharm.*

Apocinchonine and Diapocinchonine.—Upon heating cinchonine with hydrochloric acid Hesse obtained two bases, to which he assigned the names apocinchonine and diapocinchonine. E. Jungfleisch and E. Léger have pursued these investigations still further and conclude (*Comptes Rend.*) that diapocinchonine is merely a mixture and not a definite chemical compound, and is, they think, nothing but a combination of alkaloids removed by ether from the mixture separated by alcohol from apocinchonine.

Examination of Inks.

THE following method is recommended by Oswald Schluttig and G. S. Neumann for the chemical and technical examination of inks prepared from iron and nutgalls.

The bottle is opened carefully without shaking, 15 to 20 Cc. of ink are drawn out with a pipette, the bottle being immediately closed again with a cork, air-tight, but so that it can be afterwards uncorked again without shaking. The bottle is then left standing quietly for three days at a temperature of 15° C.

Meantime a *type* is prepared of the same color as the ink under examination. A normal ink is first obtained as follows: 23.4 Gm. of tannin and 7.7 Gm. of crystallized gallic acid are dissolved in hot water at 50°, and to this solution, diluted as far as convenient, there is added a solution of 10 Gm. of gum arabic and further 10 Gm. of hydrochloric acid (containing 2.5 Gm. HCl), a solution of 30 Gm. of ferrous sulphate, and 1 Gm. of carbolic acid.

The whole is well mixed and diluted to 1 L.; it is then allowed to stand for at least four days at 10° to 50°, when the clear solution is drawn off from the slight deposit formed. Filtration through paper is to be avoided as much as possible in the examination of inks. If it is unavoidable, a fine filter paper must be used which will absorb merely a trace of tannin. This normal ink is then brought to the exact tone of the ink in question by the addition of suitable coloring matters, using as a standard the 15 Cc. first taken out of the bottle.

The colors used by the author were—

Blue—"Bayrisch blue D. S. F." of the Berlin Company for Aniline Colors.

Red—"Nacarat S" from the same works.

Green—"Acid Green V. B. S. Po." from K. Ochler, of Offenbach.

Brown—"Chestnut Brown" from the same works.

For instance, we may obtain a type of medium intensity with:

Blue. Gm.	Green. Gm.	Red. Gm.	Black. Gm.	
2.2	1.0	..	2.5	Blue
..	2.5	..	0.5	Green
..	..	2.5	..	Red
..	..	..	3.5	Brown, per litre.

By increasing or diminishing the additions of coloring matters and by combining these various types, all required shades may be obtained.

After three days the bottle is carefully uncorked, and, without shaking, fully 50 Cc. are taken out of the middle of the liquid with a pipette and filtered through a small folded filter of the finest white filter paper, taking care that the filtrate does not come in contact with the oxygen of the air more than necessary. Of the filtrate we take exactly 25 Cc. to test its *permanence in glass*. Twenty-five Cc. are let flow into a clean and dry bottle holding 500 Cc. It should be of cylindrical form, 185 Mm. high and 72 Mm. in diameter, with a flat bottom. The bottle is loosely covered with a cap of filter paper to exclude dust. The bottle, in which the liquid stands at the depth of about 12 Mm., is allowed to stand for several days at the ordinary temperature of a dwelling room, in an atmosphere free from ammonia and acid, and in diffused light, and is observed. If the bottle is raised up in the hand, shaking must be avoided, as it might cause any film or scum formed on the surface of the liquid to sink to the bottom, and this may be mistaken for a sediment. If at the end of fourteen days any separation takes place, whether on the surface, on the sides of the bottle, or at the bottom, the ink is to be pronounced unsatisfactory from want of permanence.

The type prepared from pure materials when submitted to this test three weeks, remained entirely unaltered; there then was formed on the surface of the liquid a film which, even after the lapse of six weeks, was but insignificant. At the beginning of the fourth week a few small points, like spots, were to be seen at the bottom.

Test for Darkening on Paper.—For this purpose there are used the 15 to 20 Cc. of unfiltered ink first taken out of the bottle. The test is executed with stripes of ink produced as follows: A piece of the best writing paper is stretched tightly and smoothly in a frame placed at an

angle of 45°; 0.6 Gm. of the ink in question is taken up in a pipette 250 Mm. in inner width and 250 Mm. in length; the mark is at 62 Mm. from the lower end. The pipette is held perpendicularly to the paper, and the ink is allowed to flow out without air bubbles. There is thus formed a stripe of ink about 6 Mm. wide, and in length, in the author's apparatus, 270 Mm. Such stripes are made side by side with the ink in question, and with the type both in their original state and after each has been diluted with an equal volume of water, in each case three or four times alternately. The frame with the paper is left in its position until the ink has become completely dry upon the paper. The paper is then taken off and left at the common temperature for eight days in air free from dust and acidity and in diffused light. This time is necessary for completing the process of oxidation of the ink. The stripes of undiluted ink are then especially used for judging of the fluidity, the penetration, and the glutinousness, while those with the dilute ink serve merely to show the subsequent darkening. If it appears that the dilute ink has not darkened in eight days as much as the dilute type, the ink is pronounced unsatisfactory and no further trial is needed. If the stripes of ink have taken as dark a color as those of the type, the paper is cut into slips across the direction of the stripes so as to form bands of 3 Cm. in width. One of them is steeped in distilled water, a second in alcohol at 85 per cent, and a third in alcohol at 50 per cent, and allowed to lie for two days. They are then taken out, dried at the common temperature, and the intensities of the residual stripes of the ink in question and of the type are compared. If the ink is satisfactory, the stripes on all the three bands must be as dark as the corresponding stripes of the types.

Examination of Fluidity, Penetration, and Adhesiveness—The fluidity of an ink is best judged by writing with it. It must also be considered that the point of commencement of the stripes obtained as above described has an oval exhaustion, and the stripe is then nearly equally broad. In inks which flow from the pen too readily the beginning point is very broad and the stripe then narrows downward.

Whether an ink strikes through the paper is seen by a trial writing.

For testing an ink for its adhesiveness, it is necessary to write upon normal paper with the ink in question as well as with the type. The adhesiveness after drying is compared by the application of the hand or of a piece of paper.

(These tests are, of course, not applicable to inks such as vanadium ink, chrome ink, etc.)—After *Scient. Am. Suppl.*

Medicine in Fiction.

We laughed when Mark Twain proposed to deliver a course of lectures upon chemistry before the Royal Society, adding that he was in a "position to do this with greater freedom, because he knew nothing whatever about the science," but the public do not laugh at, but take in all seriousness, the medical incidents and opinions scattered up and down the pages of the novels and poems which so commonly deal with medical matters. What with the medical books which everybody nowadays feels it his duty to peruse and the quack advertisements which force themselves upon his attention wherever he turns, it is impossible to avoid collecting a curious amount of medical information of a sort which is certain to find its way sooner or later from the end of the pen of the ready writer. This is, perhaps, not to be wondered at, considering how large a place ailments and modes of treatment occupy in our thoughts and interests. The freedom with which the novelist discusses these questions is, of course, due to the principle which led to Mark Twain's droll suggestion, though it is not acknowledged with such charming *naiveté*. As every man is expected to be a fool or a physician at 40, a novelist can hardly be blamed for assuming the latter character, and he usually does assume it with a startling confidence.

One of the strange medical things in "Monte Cristo" is the way in which the old revolutionist, Nortier, manages to live on, paralyzed in every part of his body except his eyelids, which he winks freely. Yet the old fellow reasons acutely, and finds no difficulty whatever in swallowing food or drink. Dumas seemed absolutely unaware that such a paralytic condition as he describes in Nortier's case involved of necessity brain damage of the most serious kind. Elsewhere Dumas made a guillotined head speak and weep. In one of his tales in the volume, "Les Mille et un Fantimes," there is a story of a man engaged in making experiments on heads fresh from the guillotine in the Reign of Terror. The doctor is shut up with a sack of fresh heads in a little mortuary chapel, when a voice from one of the heads called him by his name—Albert. "It was the head of Solange; I thought I was going mad. I cried three times, Solange, Solange, Solange! At the third time the eyes opened, looked at me, let two tears fall, and darting forth a dim light as if the soul were escaping, they closed never to open more." Then there was Krook, the "Lord Chancellor" in "Bleak House," who went off the earthly stage by spontaneous combustion. Dickens might well be excused for falling into an error which was at that time commonly believed in by people who ought to know better. Bulwer Lytton went in for medical marvels in "Zanoni," but as he was a student of mystic lore, and actually learned magic from a professed thaumaturgist, the Abbé Constant, his wonders were attributable not so much to his ignorance of medical science as to his belief in the elixir of life and the transmutation of metals.

In "Called Back" we have the blindness and subsequent cure of the hero, and the mental aberration and subsequent recovery of the heroine. There really was some medical knowledge displayed in both these "cases." The peculiar blanching of the heroine's skin after her shock was not at all badly conceived; her partial loss of contact with the outer world was not at all an ill-contrived symptom, though the facility with which she moved about, and posed like a sane person before her lover, quite lifted her case out of the region of the actual medical world as known to physicians.

It is not surprising that even George Eliot, with all her knowledge of the innermost workings of the human mind, should have lost her way when dealing with the morbid changes of mind and brain. Tito's father, Baldassare, had been a great scholar, but after a long illness his memory, upon recovery, became a perfect blank; he could recall nothing of his scholarship, though he had not forgotten who he was. With all this Baldassare is not represented as having lost his reason; he remembers his past life, but he can no longer read or write, or recall any of his scholarship for which he had been so distinguished. It was not amnesia or agraphia with which he was afflicted; it was a form of cerebral disease known only to the eminent novelist.

Wilkie Collins made a specialty of his medical knowledge, and it was upon this account that he was induced to undertake an anti-vivisection novel, which he published under the name of "Heart and Science." The work was equally unsatisfactory both to the persons who inspired it and to the general public. The vivisector may be clearly enough conceived in the novelist's mind, and if his laboratory were the only stage on which he acted, the drama of life would be easily dealt with; but the vivisector in the ordinary relations of life—more especially as the family physician—is another character altogether, and cannot readily be made to fit the circumstances necessary to make a good sensational novel. Wilkie Collins' effort in this direction was a complete failure, and his medical men and his wonderful drugs could never have existed outside his own imagination.

In Dickens' "Tale of Two Cities," where Sydney Carton substitutes himself for the condemned Evremonde, we have premonitions of the chloroform which was to be discovered fifty years later—the chloroform of popular imagination, however, and by no means the $CHCl_3$ of the Pharmacopœia.

The poets are, if possible, even worse offenders in the matter of their death scenes than the novelists. A man pulls a 2-drachm vial of poison from his breast, swallows the contents, proceeds to make a two-hundred-line speech without a pang or a gasp, staggers gracefully backward to a conveniently placed seat, drops upon it, clasps the region of his heart with both hands, and dies

after a little convulsive movement of the legs. Another is run through the chest with a sword, he falls after some appropriate "business," but he usually raises himself to a sitting posture and makes a speech full of the most beautiful sentiment, sighs deeply, and dies. Heart disease carries off heroines in a fashion quite unknown as "broken heart," and possesses characteristics which must not generally be associated with fracture of so important an organ.

The matter has its serious aspects, for novels occupy an important position in the literature of tne day, and form almost the sole mental pabulum of half the mothers of England, especially among the well-to-do class.—*British Medical Journal.*

Further Notes on the Wines of the Medoc.*

BARRELLING AND BOTTLING.

WE now return to the barrelling and bottling of wine. As to the barrels, they should be invariably of oak and of the best quality. It is scarcely necessary for me to give a description of the wood, the making, etc., as readers of the *Consular Reports* may find that material in a recent article contained therein and entitled "The Stave Trade of Bordeaux." Suffice to say that a bad barrel will ruin any wine, so that the greatest care must be, and is, taken in their manufacture. Before being filled they are first rinsed with boiling water and then with brandy, after which a piece of sulphur affixed to the end of an iron rod is lit and thrust through the bunghole, serving by the fumes to further purify the interior of the cask.

The casks are ranged in rows in the cellar of the proprietor of the vineyard, resting, not upon the damp earth, but upon 4-inch beams. Once filled with new wine, they must be watched with the greatest care, and every week the cellarman must go his rounds, replacing by the aid of a glass "sampler" the portion that has evaporated. At the end of six months it becomes necessary to fill them only once in a fortnight. The bung of the cask must receive particular attention; the piece of linen which is wrapped around it must be changed frequently, lest by absorbing any acid it should impart it to the wine, and, in order to avoid the occurrence of this, it is usually soaked in salted water before application.

The wine should be racked off three times during the first year—in March, June, and October. I need not explain that racking—a somewhat obsolete English word—simply means the drawing off of wine from one cask into another, leaving the lees at the bottom. The barrel into which it is racked is invariably sulphurized, as before described, for the wine-growers of France take no chances. Racking is performed by means of a siphon, so that the wine may come as little as possible in contact with the air, whereby it might lose a portion of its aroma and bouquet. If racking does not seem to sufficiently clarify the contents of certain casks, the whites of half a dozen of eggs may be beaten up and mixed thoroughly with the cloudy wine. Gelatin is another substance that may be used for the purpose, and various so-called clarifiers are to be found in the market. None, however, are of a deleterious nature.

Whenever a red wine has retained a little of its sweetness—that is to say, when all its sugar has not turned to alcohol within the vat—a second fermentation is to be feared taking place in the barrel. This will be noticed usually by inspection of the bungs, which are lifted up and sometimes thrown some distance by the generation of carbonic acid gas, which we have seen is always the product of fermentation. Racking, placing in another barrel, and passing the wine through pipes immersed in boiling water are the only remedies in this event.

During the second year, as in the first, the wine must be racked off three times. But at this period there is little or no fear of a second fermentation, or "working."

Under ordinary conditions wine may be left for three years in barrel. At the end of that time it should be bottled, for it ceases to mature or improve in the wood. Before bottling, the corks to be employed should be soaked either in warm water or brandy, and bad corks, like bad casks, are to be avoided. The only machines made to facilitate bottling consist of an iron or steel tube that is narrower at the bottom than at the top. The bottle is placed beneath it, and the cork being forced downward under gradually increasing pressure readily enters the neck. Sealing wax or metal caps are then used to seal the top. All that is now necessary is to place the bottles, or shelve them rather, in the cellar flat upon their sides. The cellar itself should be kept at an even temperature. Time alone is then all that is required to mature the wine, and as each year passes it improves in quality and increases in value.

There are some wines which will mature with greater rapidity than others, and—rarely in this part of France—there are some which turn out completely bad. It is often the case that when a certain vintage is bottled it is considered of exceptional quality, although some years afterwards it fails to fulfil what it has previously promised. Again, wine that is not looked upon favorably at vintage time proves excellent after it has been for several years on the market. As with all other fruits, there are good and bad years in the grape-growing districts of France. The grape is not quite so susceptible as the Delaware peach, but still there exist certain atmospheric phenomena that are disastrous to it. The vines in this region require not too much rain, but plenty of sunlight and warmth. Nor is it a good crop in point of quantity that will serve to make a correspondingly good wine. The quality depends not alone on meteorological changes, but upon a hundred known and as many unknown reasons. There have been in the Medoc certain years phenomenally bad and others that were looked upon as perfect. These the wine merchants of Bordeaux know like their A B C's, even as far back as 1815.

TASTING AND JUDGING WINES.

With some the knowledge of wine—the ability of distinguishing the good from the bad, the old from the young, the superior from the indifferent—is an art cultivated only after years of study, practice, and experience. With others it is a gift.

To taste fine wine with any degree of justice, the glass should be but half, or scarcely half, full. Then, by a gentle rotary motion of the wrist the contents should be made to moisten the sides of the goblet without spilling any of the precious fluid over the brim. Immediately the wine emits the extreme excess of its fragrance and perfume. Just as one shakes a bottle of cologne before removing the stopper, in order thereby to obtain the full scent of the extract, so in tasting wine does the rapid evaporation of the fluid over the broad surface of the glass serve to draw from it its best qualities.

This much may be laid down to those who drink wine for pleasure and those who taste it for business: Drink always out of a large glass, though but half filled with the liquid; let the glass be invariably thin and light; let the wine itself be at a temperature of about 70° F. The rest depends upon individual acumen.

RELATIVE EXCELLENCE OF QUALITY AND CROPS.

It may not prove amiss to direct our attention for a moment to the ever-varying and uncertain wine *récoltes* of the department of the Gironde during the past twenty-five years. It is unnecessary to go further back than 1865, for wine of a vintage older than that is seldom met with. Our chief object is to give in a somewhat didactic manner the relative and comparative excellence of those "years" which are still to be found in the market. The fact cannot be too frequently emphasized that although Château Margaux, Château Haut-Brion, Château Latour, and Château Lafitte are vineyards of the first class, they suffer from climatic changes and misfortunes generally in common with the most insignificant. Like the human species, these great fruit-growing properties have their periods of health and disease. Sometimes man is not himself, and sometimes Château Margaux is not itself, nor can its quality be adjudged perfection. The year during which a particular barrel of wine was made is of the utmost importance to French consumers and should be also to Americans, who have hitherto attached too little significance in wine drinking to the vintages of individual years.

*Supplement to article on page 84 of the preceding volume.

To begin, then, with the vintage of 1865, we find that the temperature maintained throughout the season a degree favorable to the vines and to the perfect maturity of their fruit. This, it goes without saying, was the essential point; and yet, strange to state, as is being repeatedly proven to us, it did not guarantee the success of the harvest. The crop was an ordinary one, that is, of average quality. The new wine was soft and delicate. By degrees, though, it attained too much body, and when at length it became drinkable it came far from approaching what had been originally expected of it.

The year 1866 was damp and wet. The crop was much greater in quantity compared to that of the year preceding. Its quality, on the contrary, was wretched.

In 1867 a severe hailstorm served to materially injure the crop. It proved a small one, though of ordinary excellence. Let it be remembered that the word "ordinary," in the sense in which I desire to have it accepted, means "good."

The wines of 1868 surpassed in quantity those of the three preceding years. Their quality at the completion of the vintage gave great promise, but in the end turned out to be fair, nothing more.

The new wine of 1869 was remarkably good, though nothing extraordinary was expected of it. Later it turned out to be of more than everyday excellence, and at present commands a high price. The crop was, up to that period, the largest known.

The winter of 1869-'70 was intensely cold, but the crop of 1870 was by no means a small one. In point of quality the wines were very good.

The crop of 1871 was shorter than it had been since 1865, for the winter preceding was of great severity. Notwithstanding this fact, however, the wines of 1871 are of unmistakably superior quality.

The year 1872 was not a favorable one, and the wines seemed to lack character and body. The *récolte* was fair, the quality a little below the ordinary.

Frosts wrought disaster to the crop of 1873, occurring, as they did, during the last week of April. The total production of the department of Gironde was lower than it had been since 1861. The wine was of ordinary merit.

A tremendous vintage marked the year 1874. The winter had been mild, the spring all that could be desired. A warm summer, with plenty of sunlight and the requisite amount of moisture, produced a splendid crop. The quality was proportionately good; 1874 wines command a high price in the Bordeaux market, if, indeed, they may be obtained at all.

The greatest crop ever produced in Medoc was that of 1875. The winter was damp, the spring mild, the summer warm. No better wine is available to-day than of this particular year.

Clarets of 1876 were of poor quality, and the crop small.

The year 1877 was a better one as to the vintage itself, though a cold winter preceded the budding of the vines. The quality of the wine was below the average.

A small harvest marked the year 1878, the smallest since 1873.

The wines of 1880 were promising at the point of early maturity. By degrees they underwent a change in the wrong direction. The quantity was small and the vintage, all things taken into consideration, was not deemed a successful one.

The quality of the 1881 wines is exceedingly good, though the yield was rather light, giving evidence of a slight downward tendency in regard to bulk.

For 1882 the yield showed a decrease, being due, no doubt, to a very inclement spring. In quality the wines are quite inferior.

The crop of 1883 was a fairly large one, though nothing as compared to the famous year of 1875. The quality has been adjudged very poor.

Mildew attacking the plants during the early spring of 1884 ravaged and spread destruction over many of the best and most renowned vineyards; nor did it spare the small ones. Yet the vintage was not altogether a disappointing one, and its wines have turned out to be close to the average quality.

Since 1884, at which our capitulation ceases, the Medoc has produced some excellent wines, though still we find ourselves obliged to record the shortness of the crops.

Double Cyanide of Zinc and Mercury.

PROF. DUNSTAN has already shown that when a solution of zinc sulphate is added to a solution of mercuric-potassic cyanide, or when mercuric chloride is added to a solution of zinc-potassium cyanide, a white precipitate is formed which does not consist, as was first supposed, of a double cyanide of zinc and mercury of the formula $ZnHg(CN)$. Further experiments, an account of which was given by Prof. Dunstan at a recent meeting of the London Chemical Society, indicate that this precipitate is in many respects a remarkable substance. The quantity of mercuric cyanide retained is dependent on the amount of water present during precipitation, as well as on the proportion in which the salts interact; the maximum quantity retained is 38.5 per cent. Zinc cyanide, having this percentage of mercuric cyanide attached to it in such form that it cannot be removed by ordinary washing with cold water, is precipitated when cold-saturated solutions of the two salts are mixed in equimolecular proportions. A series of experiments, in which the masses of the interacting salts were varied, proved that a compound of the two cyanides is formed, and suffer decomposition to a greater or less extent, depending on the relative amount of water present. Examination led subsequently to the inference that the composition of the double salt is expressed by the formula $Zn_4Hg(CN)_{16}$. Such a salt contains 40.6 per cent of mercuric cyanide. It cannot be obtained pure, since it is decomposed by water and it can only be produced by precipitation of aqueous solutions. All attempts to prepare the double cyanide by methods other than that of precipitation have failed. There was no forthcoming evidence of the existence of any other compound of the two cyanides than that described, nor could any similar compound of zinc cyanide with other metallic cyanides than that of mercury be obtained. It is widely known now that this "tetra-zinc-monomercuri-decacyanide" has been found to be an admirable surgical antiseptic. Sir Joseph Lister, its introducer, who was present at the meeting, and at whose suggestion the inquiry was undertaken, said that the great value of the salt arose from the circumstance that, while equally effective as an antiseptic, it had none of the irritant qualities of mercuric cyanide and its slight solubility was an advantage. When mercuric chloride was used it was liable, on the one hand, to be washed away by the discharges of a wound, and, on the other, to accumulate until a solution was formed, which was so concentrated that it caused great irritation. He was glad that Prof. Dunstan had come to the conclusion that it is a definite chemical compound, because he had not been satisfied from its behavior that it could be a simple mixture.—*Lancet.*

The Treatment of Sea Sickness.

DR. HERBERT DANVERS gives in the *Lancet* the deductions drawn from several years of experience as a ship's surgeon as to the best method of treating sea sickness.

He divides the cases into three classes, according as (1) head symptoms largely predominate, (2) gastric symptoms largely predominate, or (3), the most common, those in which one finds head and gastric symptoms equally combined in minor degrees, and which may be spoken of as mixed cases.

Cases of the first kind are most frequently met among nervous and delicate women, men in feeble health and children; those of the second group among young women and men of the burly or "liverish" type, while the third class seems to be no respecter of persons. As to treatment in the first class, the author first causes an evacuation of the bowels, and then gives a nerve sedative, as some of the bromides, aromatic spirit of ammonia, or effervescing hydrobromate of caffeine. The patient's mind should be diverted.

The second group of cases is treated by first giving two glasses of warm water, which is of course ejected from the stomach, followed by a mixture containing carbonate of bismuth, bromide of potassium, dilute hydrocyanic acid, and spirit of chloroform. Another prescription is bicarbonate of sodium and carbonate of bismuth with

chlorodyne. Lemon or lime juice, dilute hydrochloric acid with infusion of cusparia, or cocaine tabloids are sometimes useful just before meals. Alcohol may be employed in treating cases of the first group, but not of the second. But little fluid should be given, and only the blandest of food, as tapioca with mutton broth or something similar.

For the third group of cases, bicarbonate of sodium with compound tincture of cardamom or nitrohydrochloric acid and gentian during the day, with a pill of calomel, colocynth, and hyoscyamus at bedtime, is recommended. This is said to have the patient on deck with a smiling countenance next morning. Cold meat with dry toast, fruit, weak tea, brandy and soda, or possibly a little whiskey, is the diet for these patients. After mentioning the various kinds of sickness produced by travel on different vessels and by different motions of the same vessel, the article closes with the encouraging information that the only sovereign remedy for all kinds of sea sickness is *terra firma*.

For Offensive Perspiration.—Filter paper impregnated with a solution of salicylic acid, laid between the toes and around the foot prior to drawing on the stocking, will, it is said, entirely prevent any fetid odor from the perspiration of the feet.

Optically Active and Inactive Lactic Acid.—By the application of Pasteur's method T. Purdie and J. W. Walker (*Chemical News*) have separated these two forms of lactic acid. The strychnine salt of the lævorotatory acid is very much less soluble than that of the dextrorotatory acid, and by fractional crystallization these salts have been separated.

Bases of Datura Alba.—Shimoyamo and Koshima have ascertained that the seeds of this Japanese plant contain hyoscyamine, together with a very small amount of atropine. The plant is distinguished from *Datura Stramonium* chiefly by the enormous height to which it often grows. Prior to the introduction of chloroform it was used for producing anæsthesia.—*Apotheker Zeitung*, vii., 458.

Acid Aerated Water.—Dr. E. Jakobsen suggests that, as alkaline media favor the growth of the comma bacillus, aërated beverages should be made acid at the time of a cholera epidemic. He recommends a carbonated water containing hydrochloric or citric acid in the place of alkaline carbonates. In Berlin aërated water is prepared in this way, containing in the pint 4 gr. of hydrochloric acid or 8 gr. of citric acid. With the same object a highly astringent red wine has been made a medium for administration of citric acid.—*Apotheker Zeitung.*

Masrite.—This is the name applied to a new mineral recently discovered in Egypt which, according to Richmond and Off, contains the only cobalt which has ever been discovered in that country. Another substance—to which the name masrium has been given, and which is supposed to be a new element—is found in masrite. The atomic weight of this metal is reckoned to be 228, and in its properties it somewhat resembles glucinum, while its oxalate is analogous to that of calcium. Masrite has the composition $(Al,Fe)_2O_3.(Ms,Mn,Co,Fe)O.4SO_3.20H_2O$.

A new cocaine reaction is proposed by Aloys Kuborne in the *Pharmaceutische Centralhalle*, as follows: Pour about 1 Cc. of nitric acid of 1.4 specific gravity on some cocaine contained in a small porcelain dish, evaporate to dryness on a water bath, allow to cool, and to the cooled residue add an alcoholic solution of potassa and place again on the water bath, when an intense violet color appears. A solution of potassa in amyl alcohol gives better results than one in ethyl alcohol. With atropine the reaction occurs with the cold residue; with cocaine not until it is again warmed.

Arnica Montana.—B. Börner finds that the flowers of this plant contain a fat consisting of the glycerin esters of lauric and palmitic acid together with about 1 per cent of a hydrocarbon of the series $CnHn_{2}+_{2}$. This latter substance separates from solution in boiling acetone on cooling as a pearly crystalline mass; it melts at 60°. Malic acid and dextrose are also present, but the most important constituent is arnicin, $C_{12}H_{22}O_2$, a reddish-yellow substance amounting to about 4 per cent. By evaporating a very concentrated acetone solution arnicin separates as a crystalline mass which deliquesces on exposure to the air; it melts at 40° and boils at 83° C., dissolves in ether, alcohol, or benzol, but is insoluble in water or alkaline solutions.—*Pharm. Jour. after Apotheker Zeitung.*

Japanese Opium.—Opium has been produced in Japan only since 1830, but since that time the production has been extended. In the province of Mije opium is produced containing more than 15 per cent of morphine, and in the year 1886 the production amounted to 944 kilos, the greater part of which contained sufficient morphine to satisfy the requirements of the Japanese Pharmacopœia. Uyeno has examined four samples of opium from that province, and gives the following data (*Apoth. Zeit.*) for the relative amounts of morphine and narcotine.

	Morphine.	Narcotine.
1.	11.727	9.258
2.	0.713	9.260
3.	10.044	11.052
4.	12.942	7.294

Succinic Acid as a Product of Fermentation.—Pasteur observed that in fermentation 100 parts of sugar yielded on the average 0.673 succinic acid and 3.64 of glycerin in the proportion of 1.5. He inferred that a part of the sugar is split up according to the equation—

$$49C_{12}H_{22}O_{11}+109H_2O=24C_4H_6O_4+144C_3H_8O_3+60CO_2.$$

On the contrary, the investigations of Thylmann and Helgen show that the amount of glycerin produced varies according to the temperature, access of air, etc. Rau has since found that there is similar variation in the quantity of succinic acid produced, and he arrives at the conclusion that the formation of this acid in fermentation is independent of the formation of glycerin, being a normal result of the action of yeast affected by various conditions.—*Pharm. Journ.*, after *Archiv f. Hygiene.*

Acetyl Fluoride, having the formula CH_3COF, has (*Compt. Rend.*) been prepared by Meslans. It is described as being more volatile than the chloride, assuming the gaseous state at 19.5° hardly soluble in water as a liquid, but as a gas readily dissolved by it to the extent of about 20 volumes of the gas to 1 of the water. It is soluble in all proportions in alcohol, ether, benzene, and chloroform, and in the presence of moisture attacks glass. It is colorless, burns with a blue flame, and may be formed by heating together in a sealed tube acetyl chloride and silver fluoride to a temperature of 260°, or by passing the vapor from the chloride through a silver tube filled with dry silver fluoride and heated to 300°. The vapor is condensed in a receiver as acetyl fluoride. It may also be prepared from the chloride in conjunction with arsenic fluoride, zinc fluoride, or antimony trifluoride.

Gold Chloride as an Antidote to Cobra Poison.—Dr. Albert Calmette, after experimental study of the subject, concludes (*Jour. Pharm. Chim*) that animals suffering from the venom of the cobra may be cured by subcutaneous injections of chloride of gold. A. A. Kanthack, however (*Lancet*), does not consider Calmette's results as at all convincing. His own experiments, conducted in India and at Cambridge, satisfied him that animals inoculated with cobra poison and at once treated by injecting gold chloride solution all around the seat of the inoculation, may survive; but in cases where stronger solutions of the poison were employed immediate treatment with gold chloride failed to avert fatal results, and the results were similar when the remedy was employed some time after injection of the poison. When the animal had been actually bitten by the cobra he had found the chloride always to fail to neutralize the poison.

Synthesis of Caoutchouc.—Isoprene is a very volatile liquid hydrocarbon, boiling at about 36° and having the molecular formula C_5H_8. It was first obtained among the

products of the destructive distillation of india-rubber, and was subsequently found by Tilden (*Chem. News*) among the more volatile compounds obtained by the action of a moderate heat upon oil of turpentine and other terpenes. He noted that when brought into contact with strong acids it was converted into a tough, elastic solid, which appeared to be true india-rubber. Specimens of isoprene made from several terpenes were preserved, and he has recently found the contents of the bottles containing that made from turpentine entirely changed in appearance, the limpid, colorless liquid having changed to a dense syrup, in which floated several large masses of a yellowish solid. This, upon examination, proved to be india-rubber. He suggests that spontaneous polymerization may have been induced by the production of a small quantity of acetic or formic acid, caused by the oxidizing action of the air. The characters of this artificial caoutchouc appear to agree remarkably with those of Para rubber.

Test for Albumin in Urine in Bright's Disease.—Gérard showed that under the influence of milk diet the albumin in the urine of persons suffering from Bright's disease is wholly or partially converted into propeptone. While no coagulable albumen can be detected by heating, addition of nitric acid gives a copious precipitate, soluble in excess, and saturated solution of sodium chloride gives a flocculent precipitate, which increases on adding acetic acid. This precipitate consists of propeptone. For quantitative determination the urine is acidulated with acetic acid, mixed with excess of sodium chloride, and after twenty-four hours some ammonium sulphate is added. The precipitate is then collected on a filter, washed with a weak solution of sodium chloride and ammonium sulphate; it is then dissolved in water with the aid of acetic acid, and again precipitated by alcohol, dried and weighed. In the examination of urine in cases of nephritis albumosa, it is not sufficient to test for coagulated albumin, but the test for propeptone must also be applied as above directed.—*Journ. de Pharm. et Chim.*

Alkaloid Determination in Narcotic Extracts.—A Partheil (*Apoth. Zeit.*) recommends the use of iodeosin (tetraiodfluorescein) as the indicator best adapted for the titrations with centinormal potash requisite in the examination of narcotic extracts, either by the shaking out method of Beckurts, or by the extraction by ether and lime according to Dieterich. But when iodeosin is added to the liquid to be titrated it does no more service than any other indicator. When, on the contrary, an ether solution is used (0.002 Gm. iodeosin in 1 L. ether), as suggested by Mylius and Forster, iodeosin is by far the most efficient indicator known. On adding 20 Cc. of the ether solution, and shaking it with the liquor to be titrated, the ether layer collecting on the surface is almost colorless. When on adding the potash solution there is the minutest trace of free alkali present, the aqueous liquid on shaking becomes rose-colored, while the ether layer remains almost colorless. Carbonic anhydride does not affect the end reaction, which remains for a long time without alteration. Indeed, the sensibility of iodeosin, used in this way, is so great that much weaker solutions can be used for titrating. This is a great advantage, although the titration has to be made with stoppered flasks, and it is necessary, after each addition of alkali, to shake up and wait for the separation of the ether. Iodeosin has been found to answer with strychnine, brucine, the solanaceous bases, aconitine, conine, morphine, and cystisine. Quinine cannot be titrated with iodeosin, probably on account of its ready solubility in ether and sparing solubility in water.

Formic Aldehyde as an Antiseptic.—Having noticed that urine was rendered imputrescible by the addition of formic aldehyde, A. Trillat has made a number of comparative tests, from which he concludes (*Comptes Rend.*) that this substance is more powerfully antiseptic than corrosive sublimate. To flasks each containing 10 Cc. of bouillon the antiseptics were added in proportions varying from $\frac{1}{10000}$ to $\frac{1}{2000000}$, and the flasks were then placed in a stove kept at a constant temperature of 30°. In the proportion of $\frac{1}{500000}$ the formic aldehyde sensibly retarded decomposition, and with $\frac{1}{250000}$ the bouillon remained unaltered at the end of four days. With a like proportion of the bichloride, decomposition occurred at the expiration of twenty-four hours, whilst with $\frac{1}{800000}$ it took place in five or six days. On the other hand, $\frac{1}{125000}$ of formic aldehyde sufficed to preserve the bouillon intact after the expiration of several weeks. Similarly small proportions were sufficient to sterilize flasks containing the bacilli of anthrax or those contained in human saliva. In sewage water, too, containing about 1,800,000 micro-organisms to the cubic centimetre, all germs were destroyed by the action of the formic aldehyde in a few hours. The action of the aldehyde in preventing fermentation is not less remarkable, though the results obtained on subjecting animals to subcutaneous and intravenal injections were not such as would justify the indiscriminate use of the formic aldehyde as a general antiseptic. Very minute quantities suffice in the preservation of milk, whilst the presence of $\frac{1}{40000}$ prevents the souring of wine. As the extractive and natural coloring matters of wine are precipitated by this addition, whilst the colors derived from coal-tar are not affected, the author suggests that this difference might be taken advantage of in testing wines.

Determination of Higher Alcohols in Ethyl Alcohol.—C. Bardy recommends (*Comptes Rendus*) for this purpose the separation of the higher alcohols by means of a liquid in which they are more readily soluble than in ethyl alcohol. In the first instance it must be ascertained whether much or little foreign alcohol is present, and for that purpose the alcohol to be examined is mixed with five times its volume of saturated solution of sodium chloride. Two results may thus be produced: 1. The salt solution mixes perfectly with the alcohol. In that case the amount of impurity is small. The alcohol (100 Cc.) is then mixed in a capacious separator, with 450 Cc. of saturated solution of sodium chloride, and water enough added to redissolve the salt separated. Carbon bisulphide is then added (60 to 70 Cc.), the whole well shaken, and after some minutes' rest the bisulphide is separated. This operation is repeated three times. The bisulphide will then contain the whole of the butyl and amyl alcohols, and to extract them the bisulphide is shaken with 2 Cc. concentrated sulphuric acid, removing the acid after settling into a flask of 125 Cc. capacity. This operation is also repeated several times, and the united acid liquor is warmed to remove bisulphide. An equal volume of glacial acetic acid is then added, the neck of the flask closed with a reflux condenser, and the mixture heated to 100° C. for four hours to promote formation of acetic ethers. The contents of the flask are then mixed with 100 Cc. of salt solution, and if higher alcohols were present the ethers will separate as an oily layer on the surface. This oily liquid is then separated and measured at 15° C., and the volume in cubic centimetres multiplied by 0.8 gives the percentage amount of butyl and amyl alcohols. 2. An oily layer separates at the surface of the salt solution. In that case larger amounts of the higher alcohols are present, and the operations above described may be carried out with a smaller quantity of the alcohol to be examined. Since carbon bisulphide dissolves only the butyl and amyl alcohols, the liquid from which the bisulphide has been separated must be examined for propyl and isopropyl alcohols. For that purpose the liquid is filtered through moist paper and distilled, the distillate being collected in a tube containing a hydrometer until this indicates 50°. At that point the whole of the alcohol will have been distilled over, and the propylic alcohol is to be determined in the distillate by any of the known methods.—*Pharm. Journ.*

The digestibility of various kinds of cheese has been carefully tested by a German chemist. Chester and Roquefort cheese took four hours to digest; genuine Emmenthaler, Gorgonzola, and Neufchatel, eight hours; Romadour, nine hours; and Kottenberger, Brie, Swiss, and ten other varieties, ten hours.

The drugging of victims with opiates, with a view to robbery, caused a New York judge recently to inflict the severest penalty permissible on some robbers who practised it. "Knock-out stuff" is the name given the mixture of opiates used by the gang convicted.

NOTES, QUERIES, AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its uses, and reputed effect; when it can conveniently be done send also a specimen of the label used on packages of the compound.

SOLUBILITY OF MERCURIC CHLORIDE.

G. H., Fremont, Neb., writes: "In the issue of the AMERICAN DRUGGIST June 1st, page 167, there is an article on the volumetric estimation of albumin in urine, in which a 1-per-cent solution of mercuric chloride is spoken of. Can you tell me how a solution of this strength can be obtained? In the *Agenda du Chimiste*, Paris, 1885, the solubility of mercuric chloride is given as 6.6 parts in 100 of water, but I have never succeeded in preparing so concentrated a solution. The Liquor hydrargyri perchloridi of the British Pharmacopœia contains ammonium chloride which is added to keep the mercuric salt in solution. Would such an addition be objectionable in the test solution referred to?"

Later editions of the *Agenda* give the same figures for the solubility of mercuric chloride as does that of 1885. While some special care in manipulation may be necessary to obtain a solution of maximum density, there should be no great difficulty in preparing a 1-per-cent solution, provided pure distilled water be used. The solution is, however, rendered more permanent by the addition of ammonium chloride, and its use would, in this instance, not interfere with the object sought to be obtained.

TO MEND BROKEN MORTARS.

W. B., Kansas City, Mo.: While Wedgewood mortars may be mended so as to do good service in the making of emulsions and ointments, etc., it is not to be expected that they can be so repaired as to stand very rough usage.

The following formulas, taken from previous issues of this journal, have proven of value in practice:

1. Casein free from fat and washed until no longer acid.
   Sodium silicate solution (water glass,) of each a sufficient quantity.

Fill a bottle to one-fourth of its height with damp casein, then fill the flask with solution of sodium silicate, and shake frequently until the casein is dissolved. The casein should be made by curdling *skimmed* milk and washing the curd thoroughly.

2. Glass, powdered and elutriated.....10 Parts.
   Fluorspar, powdered and elutriated.....20 "
   Sodium silicate solution.....60 "

Mix rapidly together and apply immediately. Both the glass and the fluorspar must be made as fine as possible, which is best done by agitating the fine powder with water, allowing the coarse particles to deposit, and then decanting the remainder of the liquid, holding the finest particles in suspension, allowing it to settle and pouring off the water.

3. Freshly burnt plaster of Paris.....5 Parts.
   Freshly burnt lime.....1 "
   White of egg.....a sufficient quantity.

Reduce the first two ingredients to a very fine powder and mix them well; moisten the two surfaces to be united with a small quantity of white of egg to make them adhesive, then mix the powder very rapidly with white of egg and apply the mixture to the broken surfaces. Then press firmly together and allow to rest undisturbed for several days. The smaller the quantity of cement used the better will the article hold together.

4. If there is no objection to a dark colored cement, the very best that can be used is probably marine glue, which is made as follows:

Dissolve 10 parts of crude (unvulcanized) rubber in 120 parts of benzin with the aid of a gentle heat. This sometimes requires from ten to fourteen days. Then melt 20 parts of asphalt in an iron vessel and add the rubber solution gradually, stirring constantly until a homogeneous mass results, all the solvent being driven off, and finally pour into greased moulds. Considerable heat is required to melt the cement when it is to be applied, and to avoid burning it, it is advisable to first soften it by heating over a water bath before heating over the open flame. The article to be mended should also be heated.

DERBY CONDITION POWDERS.

J. P. M., Columbus, Miss. According to Schädler's analysis, as given some years since, these powders are composed of the following ingredients:

Tartar emetic	2 Gm.
Black antimony	20 "
Sulphur	10 "
Nitre	10 "
Fenugreek	40 "
Juniper berries	20 "

BIBLIOGRAPHY.

Any of the works reviewed in these columns will be forwarded on receipt of the price, when the price is stated, by the American Druggist, 37 College Place, New York.

THE PRINCIPLES OF THEORETICAL CHEMISTRY, with Special Reference to the Constitution of Chemical Compounds. By IRA REMSEN, Professor of Chemistry in the Johns Hopkins University. Fourth edition. Cloth, 12mo, 325 pages, $2. Philadelphia: Lea Brothers & Co., 1892.

Modern chemistry, or rather chemistry—for the whole science is modern—is a singular web of theory and fact so closely interwoven and so intimately interdependent that it is difficult to consider either its theory or its practice independently. The primary text books therefore, and rightly, teach the science in both its theoretical and its practical aspects, but the student soon reaches a plane where a more comprehensive but still a concise presentation of the fundamental principles of the science in their proper relations to each other would be of value to him.

It is true that Watts' Dictionary and some other standard works present fairly full chapters on chemical affinity and on various other theoretical considerations, but these topics had not anywhere in English been so coördinated with a due regard for their relative importance as to be available for the use of the student until the appearance of the first edition of this book several years ago.

Since the issuance of the last edition the work has been translated into both German and Italian—facts which indicate how widespread has been its appreciation.

In the present edition the main characteristics of the earlier issues have been retained, and such revision made as has been rendered necessary by the recent advances in the science treated of.

The summarization of the results of the more recent researches in solutions, first introduced in this edition, is interesting though very brief. Raoult's law as to the relation between the freezing points of solutions and the molecular weights of the dissolved substances is given thus: "*One molecule of any compound, when dissolved in 100 molecules of a liquid, lowers the freezing point of the liquid by an amount which is nearly constant, viz., 0.62°.*" The fact is noted, of course, that this does not hold for most so-called inorganic salts.

The relation between the osmotic pressure of solutions and the molecular weights of the dissolved substances as elucidated by Pfeffer and Van't Hoff is also set forth together with the laws deduced therefrom, while the exceptions to the actions of these laws are duly noted.

The hypotheses of Clausius and Arrhenius as to the dissociation of salt, strong acids, and bases in solutions is made mention of, and of Arrhenius' conception of the *ion* the author says: "The hypothesis of Arrhenius is still under discussion, though it has rapidly grown in favor during the past few years; and apparently those

who have given most time to the study of the phenomena to which it applies, and who therefore are the best qualified to pass judgment upon it, are the ones who receive it most cordially."

This topic of solutions is one of so great interest that one is led to regret that more space is not allotted it, though after all the present work as a text book could scantily afford more extended consideration to a subject concerning which our knowledge is as yet so vague and so inconclusive. This chapter on solutions is the most important addition in the new edition of the volume.

Of the work as a whole we have spoken in most commendatory terms when referring to its earlier editions, and these commendations gain added force for the present edition because of the care exercised in its revision.

A MANUAL OF CHEMISTRY, INORGANIC AND ORGANIC, with an Introduction to the Study of Chemistry. By ARTHUR P. LUFF, M.D., etc. 12mo, cloth, 522 pp., $2. Philadelphia: Lea Brothers & Co., 1892.

The author, a lecturer in the medical school of St. Mary's Hospital, London, states that he intends this book to be a guide to the study of chemical science for the use of students in medicine, and that it is to bring together in a concise form those portions of chemical science that directly or indirectly bear on the study and practice of medicine.

The book has some quite distinct points of excellence and may be used to advantage as a handy reference book by students in medicine. It comprises within the compass of some 500 pages a section on elementary chemical theory, a reasonably full account of more important compounds of the non-metallic and metallic elements, a section on organic chemistry, and a supplementary section on chemical problems, weights and measures, and a scheme for qualitative examination of simple salts or solutions.

The introductory chapters on chemical theory are in the main good and present the fundamental theories which are necessary for the understanding of chemical reactions quite clearly. Some of the definitions, however, we think are unfortunate and might lead to misconception. Thus we are met on page 1 with the statement that the force of repulsion between the particles of bodies "is identical with latent heat." On page 11 it is stated that fluorine "has never been isolated in a state of purity and therefore cannot be included in the list of elementary gases." The results of Moissan on fluorine are so generally accepted now that they should have been given. The division on page 39 of bases into three classes: oxides, hydrates, and ammonias, without explanation of the differences or relationship of these, is certainly misleading.

The section on the chemistry of the non-metals is also satisfactory in the main, but it shows important omissions or inaccuracies which ought to be corrected. For instance, on page 152, in speaking of iodine, no mention is made of the Chilian sources from which the bulk of the iodine of commerce is now obtained. Again, on page 176, borax is stated to be "a crystalline compound of sodium metaborate and boracic anhydride." This is certainly no longer a tenable theory, as the metaborates are so extremely unstable that the action of carbon dioxide alone converts them into tetraborates, to which class borax undoubtedly belongs.

The section on the metals is quite satisfactory, although the newer methods of the manufacture of aluminum and sodium are not referred to, and as these have entirely replaced the older ones, it would seem fit that they should be mentioned.

The section on organic chemistry, while it has much good in it, seems to us to be the weakest of the several parts. Its arrangement is not satisfactory, bringing in the carbohydrates before the alcohols or organic acids have been considered, and making one chapter of fats, soaps, and alkaloids, which are then followed by compound ammonias or amines. Graphic formulas are used in some cases, but not always judiciously, as for example, the formula of oil of turpentine on page 442 is no longer considered to correctly express its constitution.

The book is neatly printed and bound and is distinctly better than most of the smaller compends furnished medical students.

PHARMACEUTICAL AND CHEMICAL PROBLEMS AND EXERCISES in Metrology, Percentage and Proportion, Fortification, Dilution, Specific Weight, Thermometry, etc. etc. By OSCAR OLDBERG, Ph.D., Professor of Pharmacy, Northwestern University. Second Edition, Revised and greatly Enlarged. 12mo, cloth, $1.50. Chicago: The Apothecaries' Co., 1892.

In an admirably conceived and excellently prepared symposium on pharmaceutical education, which appeared some months since in *Merck's Market Report*, many of the writers testified that one of the most general and most serious defects which they had met with in the mental equipment of pharmacal students lay in their lack of mathematical knowledge and training. This lack the present volume furnishes the student the means of making good, and it does so in a clear, concise, and well-ordered manner.

The addition, in the present edition, of a chapter on Latinity and nomenclature extends the scope of the work in a valuable direction. The introduction of a chapter on alligation in pharmaceutical problems is an indication of the growing favor with which this method of calculation is being received since its special applicability to pharmacy was first pointed out some years ago by Prof. Heebner in his work on pharmacy.

The value of the book to the "home" student would be enhanced by the preparation of a key containing the correct solutions of the more difficult problems, although its usefulness to those who carry on their studies under the supervision of instructors would be in just the same measure detracted from by such an addition. It is presumably because the book appeals more especially to the latter class that it has been deemed inexpedient to prepare such a key.

Altogether the work is a most valuable one, and the phrase "revised and greatly enlarged" is by no means a mere catch line, for it is almost a new book which the author has given us.

A MANUAL OF ORGANIC MATERIA MEDICA. Being a Guide to Materia Medica of the Vegetable and Animal Kingdoms. For the use of Students, Druggists, Pharmacists, and Physicians. By JOHN M. MAISCH, Phar.D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. New (fifth) edition, thoroughly revised, 12mo, 544 pages, 270 engravings. Cloth, $3.00. Philadelphia: Lea Brothers & Co., 1892.

During the ten years which have elapsed since the appearance of the first edition of this work it has steadily maintained the high position in the esteem of the pharmaceutical public which it won immediately on its appearance. Constant and careful revision has kept it well abreast of the rapid advances made during that period in pharmacognosy, and even a superficial examination of its pages is sufficient to impress the reader with the width, profundity, and minute accuracy of the author's knowledge of the subject.

The present edition differs from its predecessors mainly in the following points: The accepted pronunciations are indicated diacritically, pharmacopœial and other more important drugs are described in large type, smaller type being used for drugs of less consequence. A number of new illustrations take the place of those previously used, while the body of the text has been carefully revised so as to bring it into accord with the latest developments of knowledge concerning the various articles treated of.

MATERIA MEDICA AND THERAPEUTICS. By L. F. WARNER, M.D., Attending Physician, St. Bartholomew's Dispensary, New York. Being volume v. of The Students' Quiz Series. Pocket size, 224 pages, cloth, $1.00. Philadelphia: Lea Brothers & Co., 1892.

This book forms one of a series of thirteen quiz compends which have been prepared by New York specialists in the different branches of medicine under the editorship of Bern. B. Gallaudet, M.D.

Being intended for the use of medical students this compend of course pays more attention to the therapeutics than to the pharmacognosy of drugs, and is therefore not well suited for pharmacy students. In its particular field, however, it is excellent, the definitions being clear, concise, and accurate.

DIGESTION AND DIET. Rationally discussed by THOMAS DUTTON, M.D., Member of the Royal College of Physicians of Edinburgh; Licentiate of the Royal College of Surgeons of Edinburgh, etc. London: Henry Kimpton, 1892. Price, 2s.

There is in medical circles a growing appreciation of the homely adage that "an ounce of prevention is worth a pound of cure," as is evidenced by the amount of study now being devoted to hygiene and sanitation. As an outcome of this study there is shown a commendable inclination to educate the public as to what not to do. Dr. Dutton happily goes rather further than do some dieteticians, and advises us not only what we should not eat and what we should eat to obtain the requisite amounts and proportions of hydrocarbons, but offers suggestions which take the palate into consideration.

The ever-increasing number of patent foods is referred to as a thorn in the side of the physician, but the author proceeds to impale himself on one of these thorns by giving a very strong "reading notice" to a patented food. He is evidently not unmindful of the value of his own work, for he says that "the reader who has the interests of the poor at heart (I hope every one has) will do well to let him read" his book on Indigestion, etc.

The little book is written in a popular style, and being based on sound scientific principles and conscientious study, may, when placed in the hands of the head of the family, save the practitioner much trouble and his patients much suffering.

"A SYSTEM OF INSTRUCTION IN QUALITATIVE CHEMICAL ANALYSIS," is the title of a text book from the pen of Prof. ARTHUR H. ELLIOTT, of the New York College of Pharmacy, which is now in press. The work is based on a very extensive and successful experience as a teacher, and is along different lines from those generally followed in similar works. It is intended as an elementary text book for use under the instruction and guidance of a teacher, and is very explicit in the directions as to various details frequently left to the student to learn through experience.

"DATA CONCERNING PLATINUM, ETC.," is the title of a pamphlet received from Baker & Co., 408 N. J. Railroad avenue, Newark, N. J., which contains much interesting and valuable matter in tabular form.

NEW INVENTIONS AND NOVELTIES.

Under this heading we will be pleased to insert, free of charge, a description and illustration of novelties and new inventions of interest to the drug trade.

Inventors or manufacturers are invited to send in descriptions, specimens, and illustrations of anything which they may have suitable for mention in this column.

DR. COULTER'S VAPORIZER AND INHALER.

The accompanying illustration shows a combined vaporizer and inhaler which promises much as a means of treatment of pulmonary, bronchial, and nasal affections of all kinds where the application of the medicament in the form of a vapor is a desideratum. The simplicity of its construction is a point of much importance in its favor, as is also the absence of breakable glass fittings in its make-up. It is made by the Coulter Manufacturing Co., 114 Fifth avenue, New York City.

A VALUABLE NOVELTY IN SPATULAS.

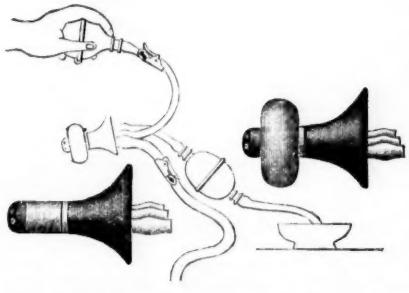
Every pharmacist has had trouble in making up ointments and handling substances which attack metals, and resort to the unwieldy and easily broken horn spatula has so far been practically the only alternative offered the dispenser. Messrs. Fox, Fultz, & Webster, of Boston and New York, have, however, recently placed on the market a spatula which seems to combine all the strength and elasticity of the steel spatula with the resistance to chemical action of that made of horn. This has been accomplished by coating a thin steel blade with hard rubber. The spatulas are made with blades ranging from 3 inches to 8 inches in length and are sold at from $4.20 to $10 per dozen.

THE DIAMOND OINTMENT BLOCK.

This device, also placed on the market by Messrs. Fox, Fultz & Webster, is deserving of mention. It consists of a pad of sheets of paper, each of which is ointment proof. An ointment may be made on the pad just as though it were a porcelain slab, and when finished the soiled sheet is torn off and thrown away, avoiding the necessity of cleaning off the slab. Each block contains 150 sheets and sells at from 25 cents for the 6x6 inches to 50 cents for the 12x12 inches size.

A NEW GYNÆCOLOGICAL SYRINGE.

No careful gynæcologist or general practitioner who is obliged to make many vaginal examinations but will agree that, no matter how large an injection may be used with syringes in use heretofore, whether of hot water alone or with drugs, if the vagina be examined immediately thereafter, it will be found retain tough mucus and other secretions. Besides the above objection to the syringe in use, one of the most common complaints is that they require an awkward and uncomfortable position while using them. The Trott Obturator Syringe, however, permits the user to lie upon her back—the best position for cleaning, because the parts, instead of being impacted, are in a perfectly relaxed condition—and the obnoxious and exhausting features attending the use of the old syringes are done away with. The instrument is made self-holding by the inflated soft rubber obturator, which also prevents any fluid injected from being spilled on the person or garments. The quantity of fluid to be injected and the time it shall be retained is under absolute control of the patient. When the fluid is injected and the instrument shut up the patient can assume any position for comfort she may desire.



Japanese Valerian.—Shimoyamo and Hyrano have found that the roots of the indigenous valerian, which differs somewhat from *Valeriana officinalis*, yield 2.7 per cent of volatile oil, having a specific gravity of 0.805 at 17°. From the aqueous distillate they obtained valeric acid that was dextro-rotatory, from which circumstance they infer that the plant contains dextro-rotatory methylethylacetic acid, together with the optically inactive isovaleric acid.—*Apotheker Zeitung.*

NEWS AND NOTES

The Wholesale Druggists' Meeting.

The eighteenth annual meeting of the National Wholesale Druggists' Association was held in Montreal, Canada, beginning on Monday morning, September 19th.

The main topics discussed, aside from the routine work of the several committees, were the cut-rate question and the Paddock pure food and drug bill.

Strong representations were present from the American Pharmaceutical Association and the Interstate Druggists' League asking for action on the cut-rate problems. The following resolutions were passed defining the stand taken on the subject:

1. *Resolved*, That we hereby reaffirm our confidence in the rebate plan and agree to maintain it in its integrity, and that we will not permit on the part of our employees, either directly or indirectly, any infraction thereof.

2. *Resolved*, That manufacturers of proprietary articles be strongly recommended to provide for sub-contracts by wholesale dealers, etc., from each salesman.

3. *Resolved*, That if any salesman or other employee is charged with direct or indirect violations or evasions of the terms of any contract entered into either by himself or his employer, the matter shall be investigated by the sub-committee on violations of contracts of the Proprietary Committee and the result reported to his employer.

4. *Resolved*, That each member of this Association pledges himself to discharge any employee found guilty of deliberate violations of any contract, and each member further pledges himself that he will not employ any man so discharged until he shall have been fully exonerated by our Proprietary Committee.

5. *Resolved*, That we hereby pledge ourselves to the fullest co-operation with any feasible plan that proprietors may adopt for the relief of our retail friends from the cutting evil.

6. *Resolved*, That while we recognize that the details of such plans will have to be fixed by the proprietor adopting it, we recommend that, in order to enable jobbers to carry out their contracts, they be made uniform, and in recognition of the varied conditions surrounding retailers in different sections of the country that they do not attempt to fix uniform and inflexible minimum prices.

7. *Resolved*, That we strongly recommend the formation of local organizations of retailers, without which no plan can ever be rendered even approximately effective.

8. *Resolved*, That a special committee of three be appointed to take charge of this part of retail work relating to retail protection.

9. *Resolved*, That until such plans shall be put into operation our sub-committee on violations of contract of the Proprietary Committee continue issuing lists of aggressive cutters and department stores under the Fifth Indianapolis resolution amended, which we hereby re-affirm.

Fifth Indianapolis resolution amended: "*Resolved*, That the committee on Proprietary Goods furnish rebate proprietors (wholesale dealers) with a list of parties who advertise proprietary articles at cut rates at retail, also parties who are purchasers for division in violation of the letter and spirit of their contracts (such names to be furnished the committee with evidence of the charge properly authenticated, either by printed advertisement or by the indorsement of the officers of any retail organization).

10. *Resolved*, That the committee on Violations of Contracts and Committee on Infringement of Trade Marks be continued as heretofore.

Since this pledges support of any action taken by the proprietors it insures the co-operation of the wholesale association in the enforcement of the recommendations of the proprietors as given in another column.

The methods pursued by the "Whiskey Trust" in its endeavors to throttle competition were condemned by resolution.

In the discussion of the Paddock pure food and drug bill the whole history of the bill was gone over, and the following preamble and resolution framed as expressing the sentiments of the Association:

Whereas, A bill has been passed by the United States Senate and is now before the House of Representatives, entitled "An Act for Preventing the Adulteration and Misbranding of Foods and Drugs and for other purposes," and although this measure has been so amended by the valuable services of our committee as to remove many of its originally objectionable features, yet we are satisfied that it will fail to accomplish the object and the purposes for which it is intended. Therefore,

Resolved, That we oppose the passage of the bill, and that the matter be referred to our committee on legislation for further action in accord with the tenor of this resolution.

Detroit was selected as the place for the next meeting, which is to be held between the 15th and the 30th of September, 1893.

The following officers were elected to serve for the ensuing year: President, James E. Davis, of Detroit; first vice-president, J. A. Gilman, of Boston: second vice-president, D. D. Phillips, of Nashville; third vice-president, H. E. Marion, of Toledo; fourth vice-president, W. A. Hover, of Denver; fith vice-president, C. W. Snow, of Syracuse; secretary, A. B. Merriam, of Minneapolis; treasurer, S. M. Strong, of Cleveland.

Board of Control, M. C. Peter, of Louisville; George K. Hopkins, of St. Louis; Thomas F. Main, of New York; Thomas A. Cobb, of Chicago; W. H. Schmidt, of Indianapolis.

The Proprietary Meeting.

The tenth annual meeting of the Association of Manufacturers of and Dealers in Proprietary Articles was held in Montreal, Canada, on September 19th and 20th.

The attendance was only fair, but much interest was displayed in the proceedings by those present, and the matter of cut-prices was thoroughly ventilated in all its various aspects. As an outcome of this discussion, resolutions were passed recommending proprietors to adopt the A. P. A. plan. This is to be done by each proprietor addressing the following letter individually to the Interstate Retail Druggists' League:

To the Officers and Members of the Interstate Retail Druggists' League:

The Association of Manufacturers of and Wholesale Dealers in Proprietary Articles, of which we are members, at a regular meeting, held September 20th, 1892, in Montreal, passed the following resolutions: "That it is the sense of this Association that the 'A. P. A. Plan' be recommended to the members of this Association for their adoption as individual firms and corporations, and that they carry out the plan as nearly as possible, the matter of details to be left to each proprietor."

We desire to express to you our hearty approval of this action, and to state that we will take immediate action to carry out the spirit of this resolution and to adopt the following regulations for the sale of our products, to prevent them from getting into the hands of cutters:

1. We will adopt such marks on our goods and keep such records as will enable us to discover from each retail package the name of the wholesale dealer to whom we sold the goods.

2. We will include in our contracts with our wholesale agents a clause to the effect that they must not sell our goods to any retail dealer whose name may be in our "Prohibited List," except at full retail prices.

3. We will add to our "Prohibited List" the name of any retail dealer who sells our goods at our prices, provided that evidence of such retailer selling our goods at cut-prices is furnished to us by your secretary, indorsed by at least three retail dealers in that town or city who are members of your organization and by at least one wholesale dealer who is a member of the National Wholesale Druggists' Association. This provision not to be

operative until at least 50 per cent of the retailers in that city or town are members of the League.

Signed . . .

As stated elsewhere, this matter was brought up before the National Wholesale Druggists' Association and approved by them.

The entire board of officers were re-elected for the ensuing year. The Association will, as usual, meet at the same time and place as the National Wholesale Druggists' Association.

Utah Association.

The Utah Association held the adjourned session of the April meeting on Tuesday afternoon, October 4th, at the Knutsford Hotel, in Salt Lake City. Fifty members were present. President J. B. Forlow called the meeting to order and stated that the object of the meeting was to give those pharmacists who had not joined at the April meeting a chance to enter the association as charter members. Secretary C. H. McCoy, of Salt Lake City, was successful in obtaining twenty new members.

The following standing committees were appointed:

Commerce and Trade—R. Cleghorn, W. A. Nelden, G. W. Driver.

Papers and Queries—F. W. Scorff, E. B. Sorley, F. J. Hill.

Legislation—F. Bishop, H. Hines, A. Hollander.

Pharmacy Records—J. J. Driver, H. G. Bates, J. L. Boyden.

Finance—R. Bridge, Geo. Brice, Carl Schmidt.

Transportation—H. A. Walker, Wm. Driver, F. B. Hurlbut.

This completes the organization, and the members expect to make a good report from the next annual meeting on the second Tuesday in May, 1893.

BOARDS AND COLLEGES.

NEW YORK COLLEGE OF PHARMACY.—The opening exercises of the college were held in the lecture hall of the college on Monday afternoon, October 3d, and were very simple, consisting of brief addresses by President Fairchild and other officers of the college, after which the regular course of lectures was at once entered into. The hall was filled with the students and the classes show a very satisfactory increase in size over those of previous years. The preparatory work looking toward the erection of the new college building is going rapidly forward.

ILLINOIS BOARD.—At the practical examination of the Illinois Board of Pharmacy held in Chicago, September 13th and 14th, the following passed a satisfactory examination as licentiates in pharmacy, and were registered as registered pharmacists by examination:

H. W. Bell, J. H. Bolin, N. Evans, J. Kaszynski, G. V. Koch, L. C. Noble, C. C. Petersen, L. N. Richards, J. Rudnicki, O. G. Stolz, W. C. Schedler, and C. M. Wood, of Chicago; H. A. Baker, La Salle; F. M. De Kroyft, Peoria; A. Hensel, Mokena, and M. N. Hinsdale, Lockport.

The following passed a satisfactory examination as Assistant Pharmacists and were registered as registered assistant pharmacists by examination:

J. Adams, T. F. Byrne, S. D. Davis, T. Drought, D. J. Evans, C. L. Fischer, F. Grammer, D. C. Hoyt, W. H. Lloyd, G. Selmer, W. W. Sherman, D. Swingle, A. T. Wheeler, G. A. Young, and H. H. Sherwood, of Chicago; E. P. Brown, Quincy; E. Healy, Cary; C. C. Kelly, Sterling; J. Liess, Jr., Mokena; J. W. Mayes, Dalton City, and D. J. McNaughton, Evanston.

THE ONTARIO COLLEGE OF PHARMACY commenced its thirteenth annual session on Thursday, September 15th, with nearly 100 students in attendance. After a few words from the registrar-treasurer, I. T. Lewis, and the chairman of board of education, J. H. Mackenzie, and an introductory address by Prof. Chas. F. Heebner, Dean, the opening lecture of the term was delivered by Prof. J. T. Fotheringham. The College is now affiliated with the University of Toronto. J. H. Roberts, a prominent pharmacist of Ottawa, recently deceased, left a bequest of $3,000 to the institution. The College and the "muslin druggists" have just fought their first battles in the courts and the college has come off victor.

CORRESPONDENCE.

We will be pleased to give publicity in this column to any matters of general trade interest which may come to the attention of our readers. We do not, however, assume any responsibility whatever for the statements made nor for the opinions expressed.

To insure attention all communications intended for use in this column should be accompanied by the name and address of the author, though, if desired, the anonymity of the writer will be sedulously guarded.

No Grocers Need Apply.

Editor AMERICAN DRUGGIST:

At the recent meeting of the Utah Pharmaceutical Association a great deal of time was taken up with trade gossip, and the most prevalent complaint was against H. E. Bucklin & Co., of King's discovery fame. Their agent has canvassed the Territory very thoroughly, and as a rule found the druggists well supplied with their goods, they having purchased them from the local jobbers. What the instructions of these agents might have been I cannot say. But because these druggists would not load themselves as if for bear, the grocery trade was solicited and sold, and advertisements representing these grocery stores as their local agents were used.

These complaints were numerous in the convention, and now we wonder if H. E. Bucklin & Co. expect the drug trade to protect their goods. We, the druggists, are thoroughly organized in this Territory, and if there is such a thing as protecting our interests, we will do it.

ANTI-GROCER.

SALT LAKE CITY, UTAH.

Let Us Have Actions—Results.

Editor AMERICAN DRUGGIST:

The old Roman method of overcoming an enemy was to divide the forces of the enemy and then conquer. One would judge from the recent introduction by Mr. Kline of a paper of Mr. Canning declaring the A. P. A. plan a failure, at the national meeting of the Wholesale Druggists' Association at Montreal, and the ensuing discussion, that those who are opposed to any and every plan, who want to sell cutters, bazaars, and department stores, have succeeded in dividing the ranks of those pharmacists who want to abolish cutters.

It has been attempted to make it appear that the A. P. A. plan is impossible of success. You will recall that the legal objections, as Dr. Pierce said in the Proprietors' Association, are only against enforcing the plan in a combined system. But here is a plan that the retailers have indorsed, that the proprietors have approved, and that the wholsalers have agreed to support. And there is not a single objection in any quarter that it will be either impracticable or impossible for any proprietor acting in individual capacity to put the plan in operation.

The Proprietors' Association at Montreal has re-indorsed the plan and recommended the proprietors of that association to put it in force individually. Retailers will watch with eager eye while the proprietors who accept the plan and put it in force are being counted. These enemies of all plans are now clamoring for organization and some other plan, and seem desirous of creating the impression that the Interstate League must supplant the A. P. A. plan, but after being organized a plan will be necessary

The wholesalers at Montreal have unanimously resolved for a "feasible plan." Pray what plan could be more feasible than the A. P. A. plan, which has been indorsed by the proprietors, by the wholesalers, and by the retailers, and found absolutely without objection for the proprietors to adopt individually, and now after a year's discussion is re-indorsed at Montreal by the proprietors? At the organization of the Interstate League its founders never intended that it should supplant the A. P. A. plan. At its recent annual meeting, subsequent to the annual meeting of the American Pharmaceutical Association, it declared for the A. P. A. plan and sent as strong and able representatives of the retail pharmacists as there are in this country to Montreal to urge upon the proprietors to put in force the A. P. A. plan, if not put in in its combined form, to put it in, each proprietor for himself.

The A. P. A. has never insisted upon the combined feature of the plan except for the convenience and economy of work to all parties at interest. What is urged by the American Pharmaceutical Association is

that proprietors put the plan in operation so that it shall prevent cutters from getting proprietary articles, as proprietors may prefer to do individually or collectively. Every detail is left absolutely to proprietors to determine. The A. P. A. and the Interstate League strike two essentially distinct and different things. The League plan simply refuses patronage to jobbers and proprietors, through whom the goods fall into the hands of cutters. The A. P. A. plan is a method and system to enable jobbers and manufacturers to keep goods out of the hands of cutters and it is a means to an end, while the Interstate League simply proposes a penalty for those dealers supplying cutters.

The A. P. A. plan proposes its prevention before it is done; the Interstate League proposes a penalty after it is done, which for its own work is good. But by no human possibility can one be made to supplant the work of the other.

The excellent details for the execution of the A. P. A. plan, suggested by Mr. Haynes, which were unanimously adopted, absolutely leave the execution of the A. P. A. plan entirely in the hands of Proprietors and the Interstate League. The American Pharmaceutical Association thus places the entire matter in the hands of the Interstate League, recognizing that the League, with the Proprietors, are the practicable agency which will lead the pharmacists of this country into a large and wealthy place.

Let retailers and their friends stop quibbling over details and unite for results. From the discussion it is clear, as the pharmaceutical journals all declare, the difference is one of details. We are all for the retailer's interests. Let no one asperse the motives of others and let no friend denounce the A. P. A. plan as a failure until it has been tried by a sufficient number of jobbers in an individual way to determine what it will accomplish. There is not a man anywhere who will presume to claim it is illegal for an individual proprietor to put it in force. As no other objection has been stated in the discussion it would seem the A. P. A. plan is as nearly perfect as any plan that could be devised, and has the advantage of having the approval of all parties at interest if proprieters adopt it individually.

Actions and results are wanted and not new plans. Let proprietors who wish to help retailers accept the recommendations of the Proprietors' Association at Montreal and declare that in future the A. P. A. plan will govern sales of their preparations.

W. H. TORBERT,
Chairman Commercial Section A.P.A.

DUBUQUE, IA.

The A. P. A. Plan Again.

Editor AMERICAN DRUGGIST:

I am deeply sensible of the flattering allusions to my humble efforts in behalf of my fraternity contained in your editorial of current number of the DRUGGIST. I am grieved also to learn that you found the slightest cause for adverse criticism in my paper published in same number. I had no intention of slighting any of the pharmaceutical journals, much less the AMERICAN DRUGGIST under its new and progressive management. I ought to have said that "but one side of the question had been *sufficiently* given," etc., etc.

For instance, a written address (published in full) was discussed at the Profile House meeting, and you remember, being present, that I replied *at some length*, from the floor, using many of the arguments now published for the *first time* in my contribution to your valuable medium.

HENRY CANNING.

BOSTON, MASS.

How They Do These Things in England.

The cutting of prices on proprietary goods has become very much more general in England than it has in the United States, and as Mr. J. Hills Hartridge, a member of the firm of Blondeau et Cie, manufacturers of "Vinolia" soap and preparations, is now on a visit to this country, a representative of the AMERICAN DRUGGIST sought for an interview with the object of finding out some interesting details as to how this firm has managed to control the cutting of their goods in that country and to uniformly maintain a series of minimum prices.

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Glycerole Pepsin

Is a permanent and concentrated solution of the ferment, constant in strength, and peculiarly adapted to use in all liquid combinations. We guarantee that each 10 minims of this elegant preparation contain one grain of our standard pepsin (1:2500). It is freely and perfectly miscible with any appropriate medium.

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